

NASA CR-144945-3

Part 3 of 4

A COMPILATION OF SPACECRAFT LOADS DATA
FROM
FOUR TITAN CENTAUR LAUNCH VEHICLE FLIGHTS
VOLUME II

VIBRATION POWER SPECTRAL DENSITY ANALYSIS
OF LAUNCH AND MAX Q FLIGHT

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(NASA-CR-144945-Pt-3) A COMPILATION OF
SPACECRAFT LOADS DATA FROM FOUR TITAN
CENTAUR LAUNCH VEHICLE FLIGHTS. VOLUME 2, PART 3: VIBRATION POWER SPECTRAL DENSITY
ANALYSIS OF LAUNCH AND MAX Q FLIGHT (General G3/15 42478) N77-28184
Unclas

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VOLUME II

VIBRATION PSD OF LAUNCH AND MAX Q FLIGHT

SECTION 3

TC-4/VIKING A FLIGHT DATA

Launch Date August 20, 1975

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Contents Description - Section 3 - TC-4 Data

This section presents Power Spectral Density (PSD) plots of the eight parameters listed below. All analyses are of two second samples for the significant period of time following Stage 0 Ignition and through Max Q flight. Pre-ignition data is also presented for signal noise reference. A matrix of time samples and analyses performed are shown in Table 1. Table 2 is a list of instrumentation and figure 1 shows instrument locations.

Parameters for Which PSD Analyses were Performed

Parameter	Description
CY1820 CY1830 CY1840 CY1850	Vibration measurements of the Viking Orbiter Bus; CY1830 is transverse, all others are longitudinal.
\ddot{X}_L \ddot{Y}_L \ddot{Z}_L	Acceleration of the Viking Lander Capsule (VLC) c.g. obtained through transformation of Viking Lander Capsule Adapter (VLCA) strain gages assuming a rigid VLC
\ddot{Z}_B	Average of phase correlated longitudinal vibration measurements.

Table 3.1 - Data Analysis Matrix - PSD - TC-4/Viking A

Event & Time	IRIG No. Sensor No.	#18 CY1820	#17 CY1830	#16 CY1840	#15 CY1850	.. X L	.. Y L	.. Z L	.. Z B
Pre Ignition 76917-76919	(T-3 - T-1)	4096 & 1024	4096 & 1024	4096 & 1024	4096 & 1024	-	-	-	1024
Stg 0 Ign. -1 76920.3-76922.3	(T+.3- T+2.3)	4096	4096	4096	4096	1024	1024	1024	1024
Stg 0 Ign. -2 76922.3-76924.3	(T+2.3-T+4.3)	4096	4096	4096	4096	1024	1024	1024	1024
Stg 0 Ign. -3 76924.3-76926.3	(T+4.3-T+6.3)	4096	4096	4096	4096	1024	1024	1024	1024
Max Q -1 76954-76956	(T+34-T+36)	4096	4096	4096	4096	1024	1024	1024	1024
Max Q -2 76956-76958	(T+36 - T+38)	-	-	-	-	1024	1024	1024	1024
Max Q - 2.5 76957-76959	(T+37 - T+39)	4096	4096	4096	4096	1024	1024	1024	1024
Max Q - 3 76958-76960	(T+38 .. T+40)	-	-	-	-	1024	1024	1024	1024
Max Q - 4 76960-76962	(T+39-T+41)	4096	4096	4096	4096	1024	1024	1024	1024

Note: The numbers 4096 & 1024 denote the digitization rate, in samples per second, used in each instance.

A special set of filters were always used with the 1024 digitization which minimized phase errors below 40 Hz.

TABLE 3.2 FM/FM TELEMETRY INSTRUMENTATION, 2208.5 MHz LINK

MEAS. NO.	DESCRIPTION	JPL DESIGNATION	RANGE		UNITS	FM/FM CHANNEL	FILTER CUT OFF FREQUENCY - Hz	
			LOW	HIGH			A 1024 SPS	B 4096 SPS
CA886Y	Fwd. Equip. Comp. Amb.	-	120	150	db	19	—	2800
CY182Ø	Longit. Vib.; Foot H	2001AC1	-30	30	G	18	133	2100
CY183Ø	Radial Vib.; Bay 7/8	2001AC2	-12	+12	G	17	134	1580
CY184Ø	Longit. Vib., Foot C	2001AC3	- 5	+ 5	G	16	135	1200
CY185Ø	Longit. Vib., Foot R	2001AC4	- 5	+ 5	G	15	137	900
CY186S	VLCA #750 Strain 1	2001SG1	10000C	8000T	Lbs	14	140	—
CY187S	VLCA #751 Strain 2	2001SG2	10000C	8000T	Lbs	13	145	—
CY188S	VLCA #752 Strain 3	2001SG3	10000C	8000T	Lbs	12	153	—
CY189S	VLCA #753 Strain 4	2001SG4	10000C	8000T	Lbs	11	160	—
CY190S	VLCA #754 Strain 5	2001SG5	10000C	8000T	Lbs.	10	180	—
CY191S	VLCA #755 Strain 6	2001SG6	10000C	8000T	Lbs.	9	200	—
CY192P	VLC Bioshield DP		-0.25	0.75	PSID	4	—	—
CY193P	VLC Bioshield Press.		0	16	PSIA	3	—	—

① Range shown is max limit. Each gage will have a different range dependent on its calibration value.

A. This is a special set of filters which, in conjunction with discriminator characteristics, results in phase errors of less than 10 between VCO 9 through 18 below 40 Hz

B. These are twice the standard IRIG filter.

TABLE 3.3 - TIME OF FLIGHT EVENTS: TC-4/Viking A Spacecraft (Launch Date 8/20/75)

FLIGHT EVENT	Predicted Sec from LO	Actual Hrs Min Sec	Actual Seconds	From Stg O Ign Seconds	From Stg I Ign. Seconds
1 STG O IGN. / LO	0	21:22:00. *	76920	0	-
2 MACH 1/MAX Q	50	21:22:38	76958	38	-
3 FBR RELEASE	100	21:23:40.2	77020.2	100.2	-
4 STG I IGN	110	21:23:50.6	77030.4	110.4	0
5 JETT SRM	122	21:24:01.9	77041.9	121.9	11.5
6a POGO - Typ TC-1	232	-	-	-	-
6b POGO - Typ TC-2	250	-	-	-	-
7 SI-BO/SII-IGN	259	21:26:19.5	77179.5	259.5	149.1
8 JETT SHROUD	270	21:26:31.9	77191.9	271.9	161.5
9 STG II BO	468	21:29:47.6	77387.6	467.6	357.2
10 JETT STG II	474	21:29:57.0	77397.0	477.0	366.6
11 MES-I	485	21:30:05.5	77405.5	485.5	375.1
12 MECO-I	613	21:32:11.3	77531.3	611.3	500.9
13 MES-II	1824	21:47:31.2	78451.2	1531.2	1420.8
14 MECO-II	2140	21:52:46.3	78766.3	1846.3	1735.9
15 S/C SEP.	2360	21:56:30	78990	2070	1959.6

*21:22:00 is instant of

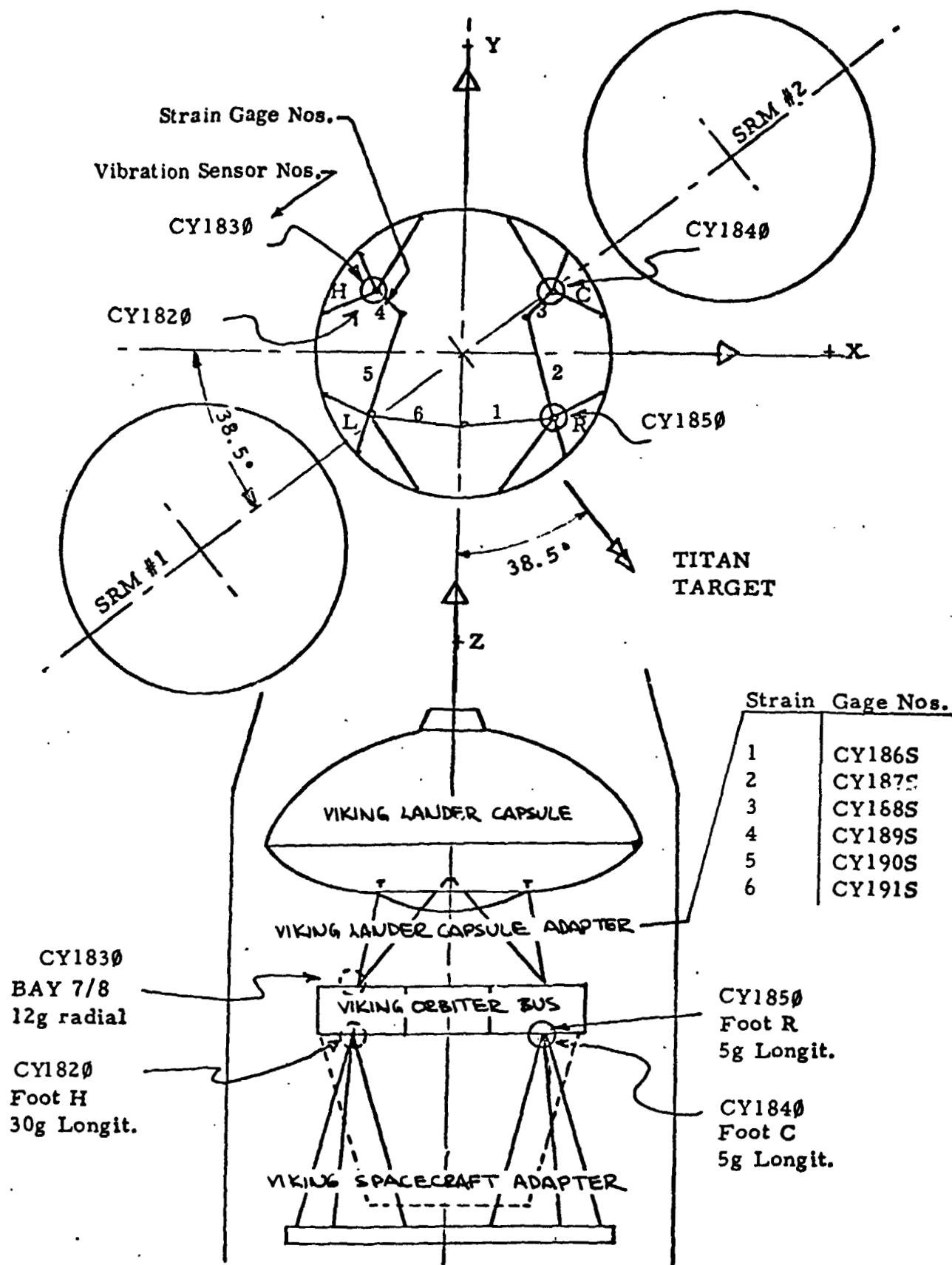
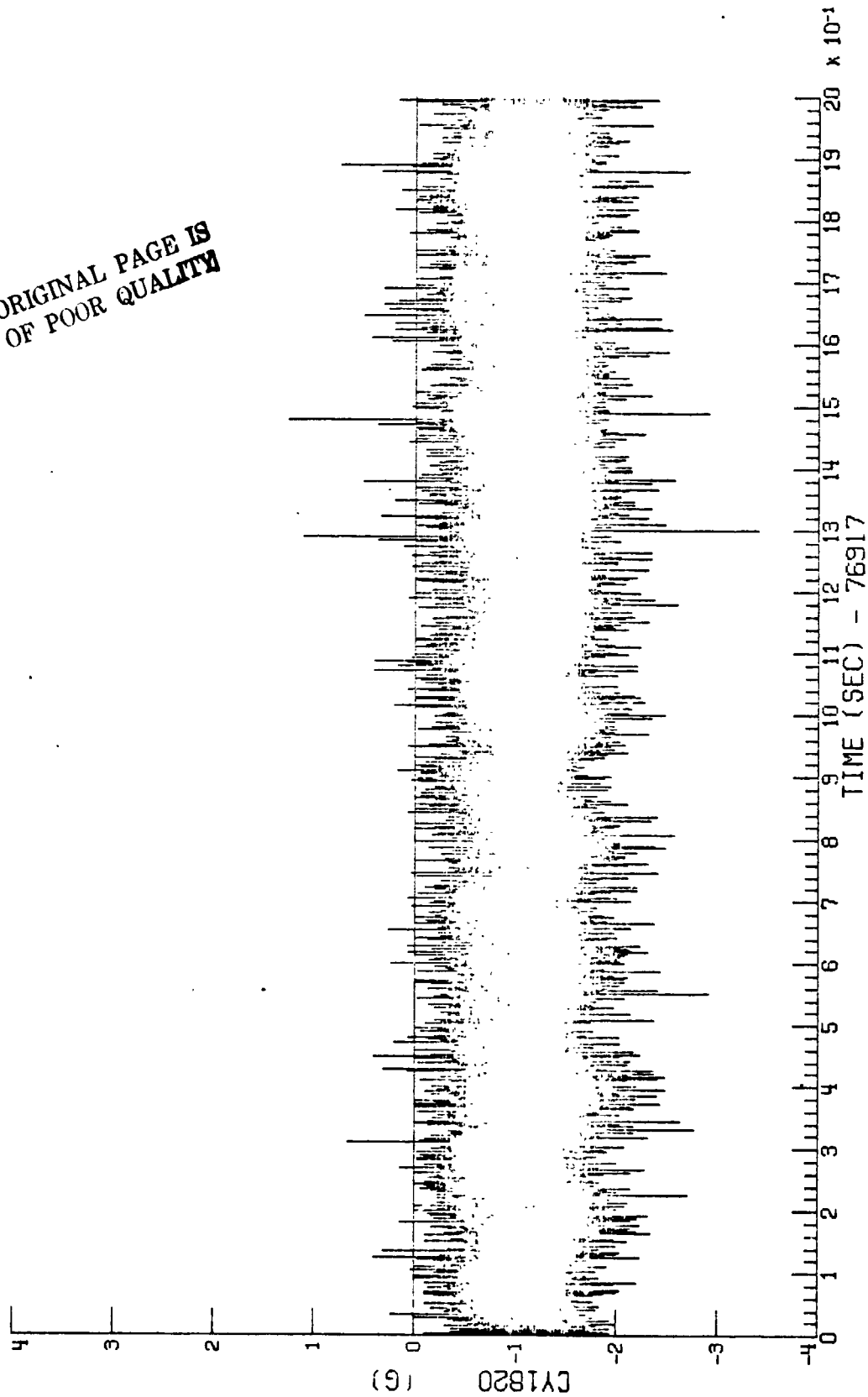


FIGURE 3.1 VIKING SPACECRAFT INSTRUMENT LOCATIONS

TIME HISTORY

ORIGINAL PAGE IS
OF POOR QUALITY



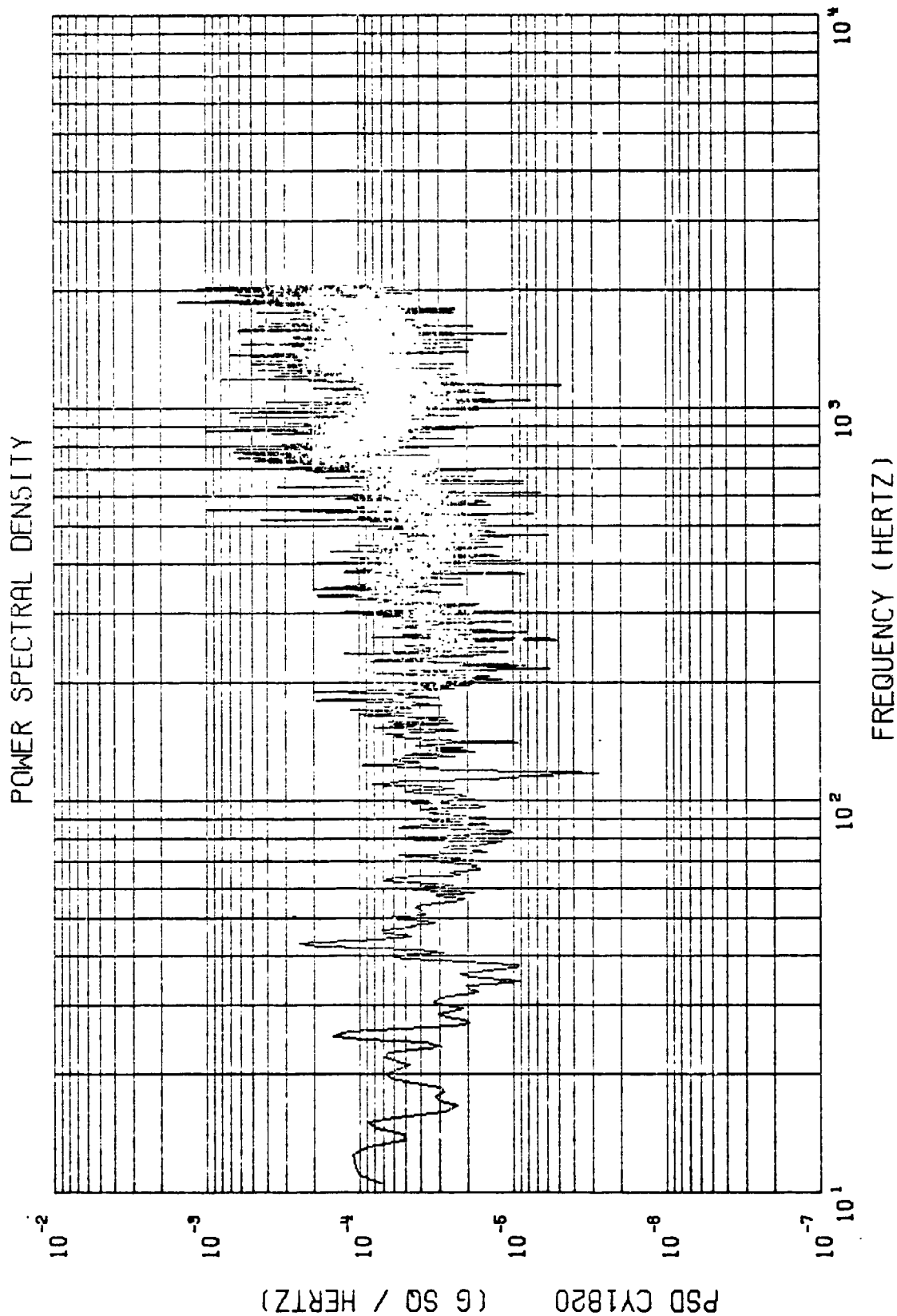
MAX = 1.269

MIN = -3.406

VIKING A FLT (CIF)

PRE-IGNITION

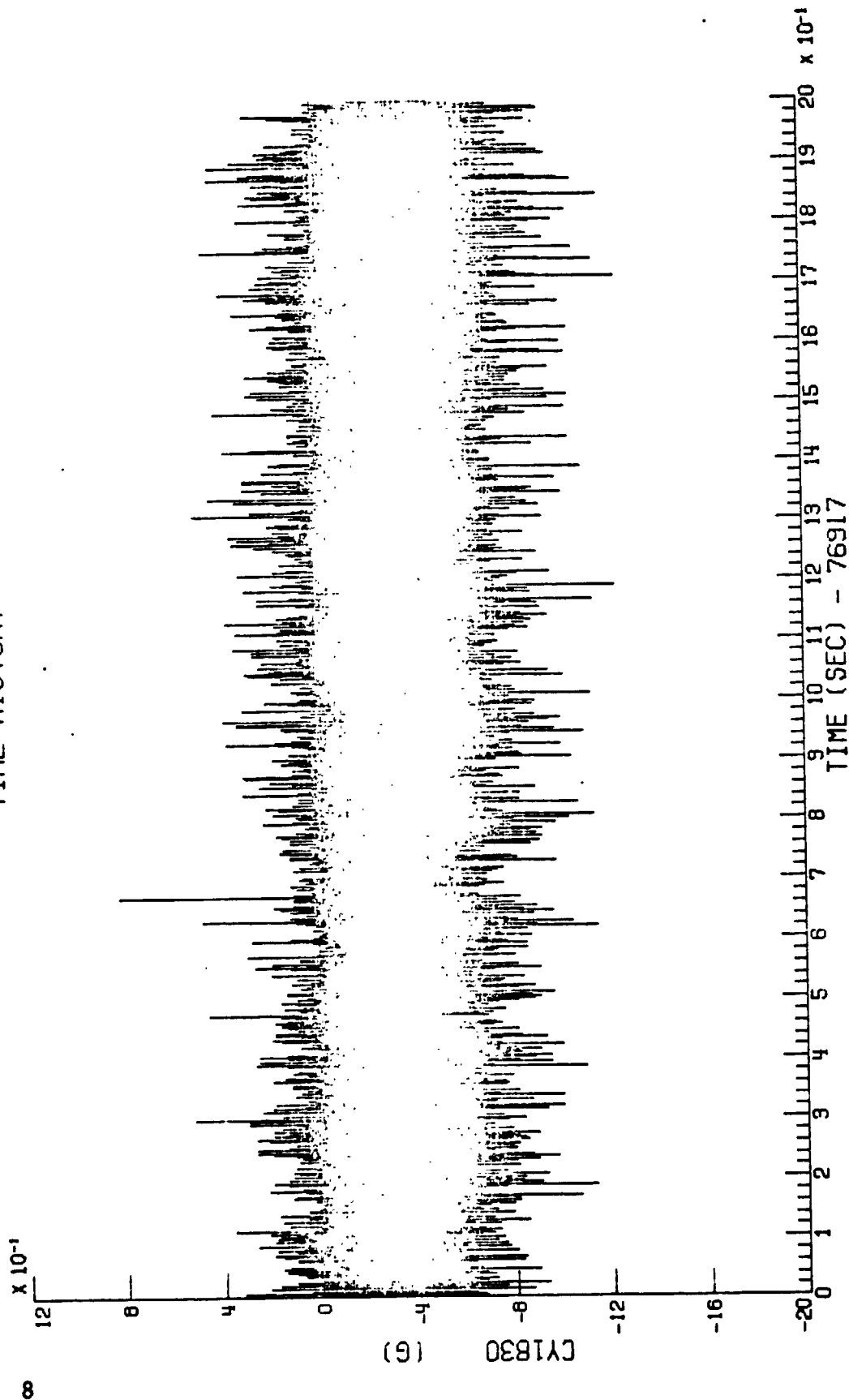
CY1820



$\Delta F = .499$ START = 76917.000 SEC STOP = 76919.000 SEC
 MEAN = -1065×10^{-3} $\sigma^2 = 23705 \times 10^{-5}$ $\sigma = 48688 \times 10^{-5}$ $3\sigma = 14606 \times 10^{-4}$

Figure 3.2b

TIME HISTORY



MIN = -1.237

MAX = .825

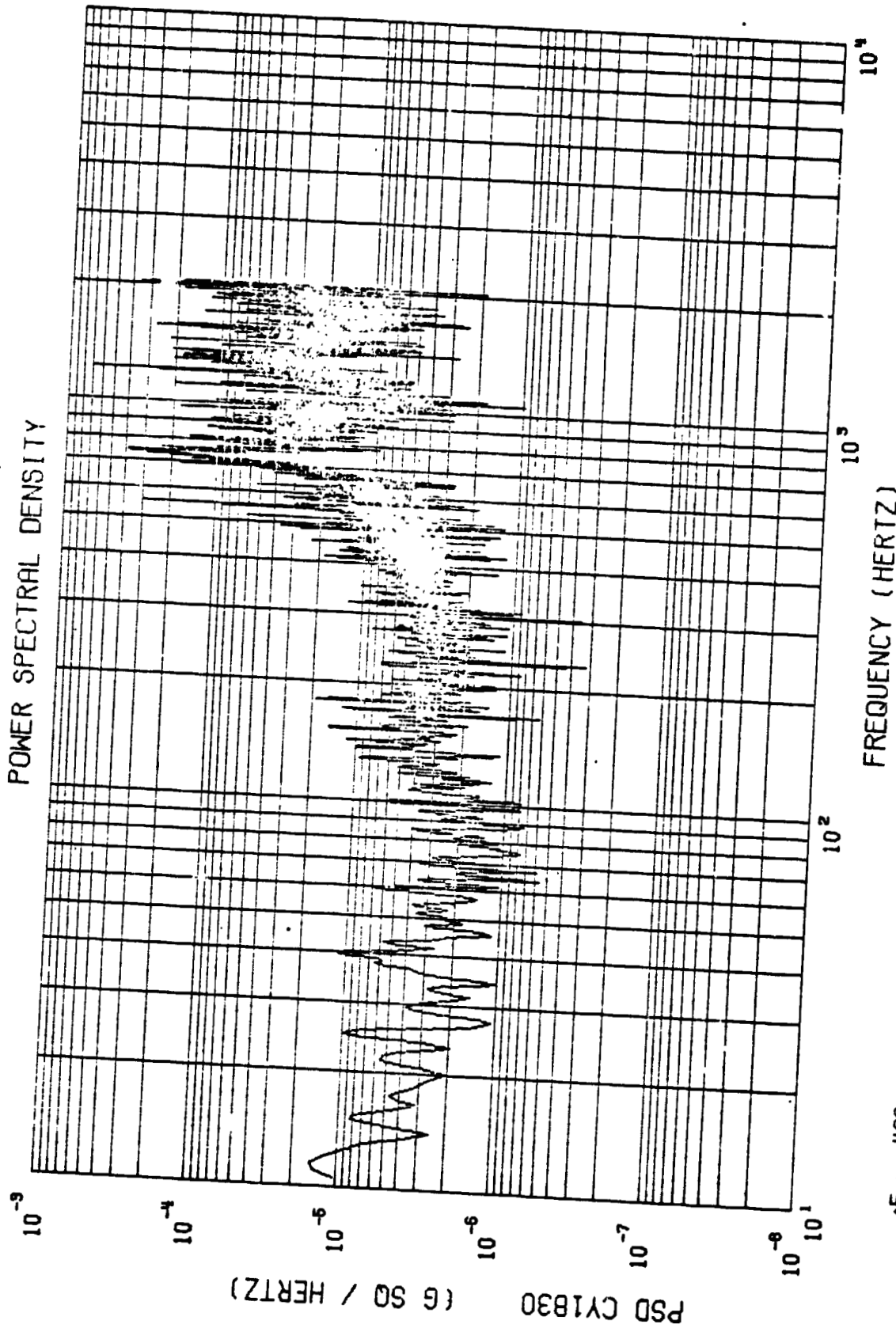
CY1830

PRE-IGNITION

VIKING A FLT (CIF)

Figure 3.3a

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR



$\Delta f = .499$

START = 76917.000 SEC

STOP = 76919.000 SEC

MEAN = -28154×10^{-9}

$\sigma^2 = 61143 \times 10^{-8}$

$\sigma = 24727 \times 10^{-5}$

$3\sigma = 74181 \times 10^{-5}$

VIKING A FLT (CIF)

PRE-IGNITION

CY1830

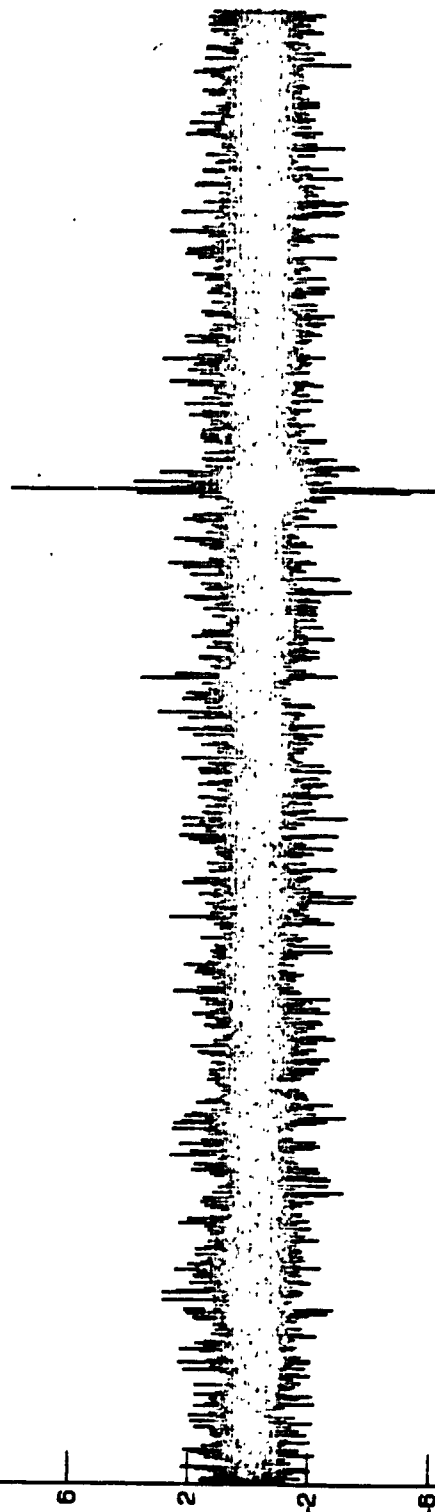
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Figure 1.3b

TIME HISTORY

10
22
18
14
10
6
2
-2
-6
-10
x 10⁻¹

(G) CY1840



TIME (SEC) - 76917

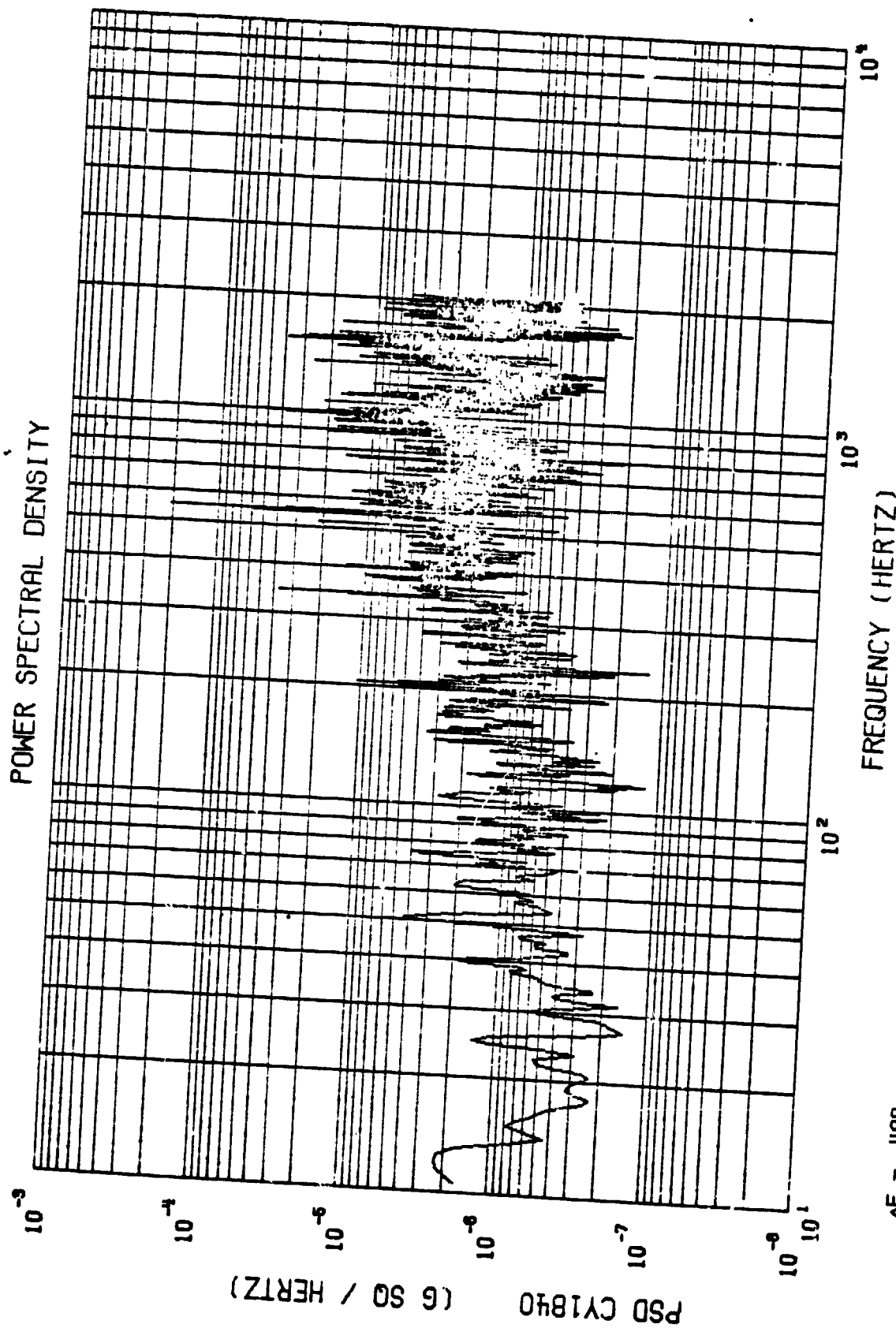
MAX = .811

MIN = -.617

VIKING A FLT (CIF)

PRE-IGNITION

CY1840



$\Delta F = .499$

MEAN = -13668×10^{-4}

$\sigma^2 = 75074 \times 10^{-7}$

$\sigma = 86645 \times 10^{-4}$

$3\sigma = 25993 \times 10^{-3}$

START = 76917.000 SEC

STOP = 76919.000 SEC

VIKING A FLT (CIF)

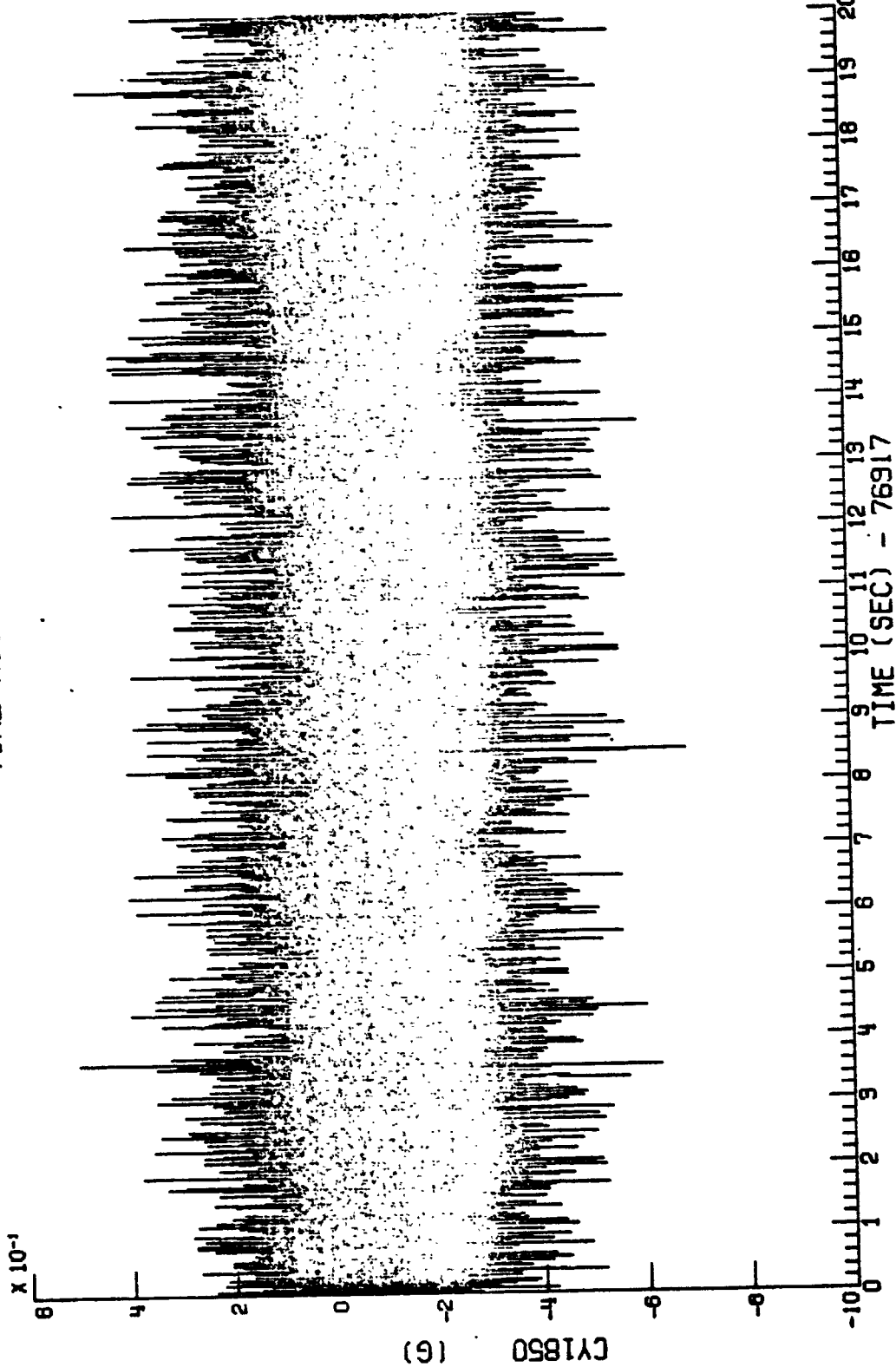
PRE-IGNITION

CY1840

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Figure 3.4b

TIME HISTORY



MIN = -.683

MAX = .500

CY1850

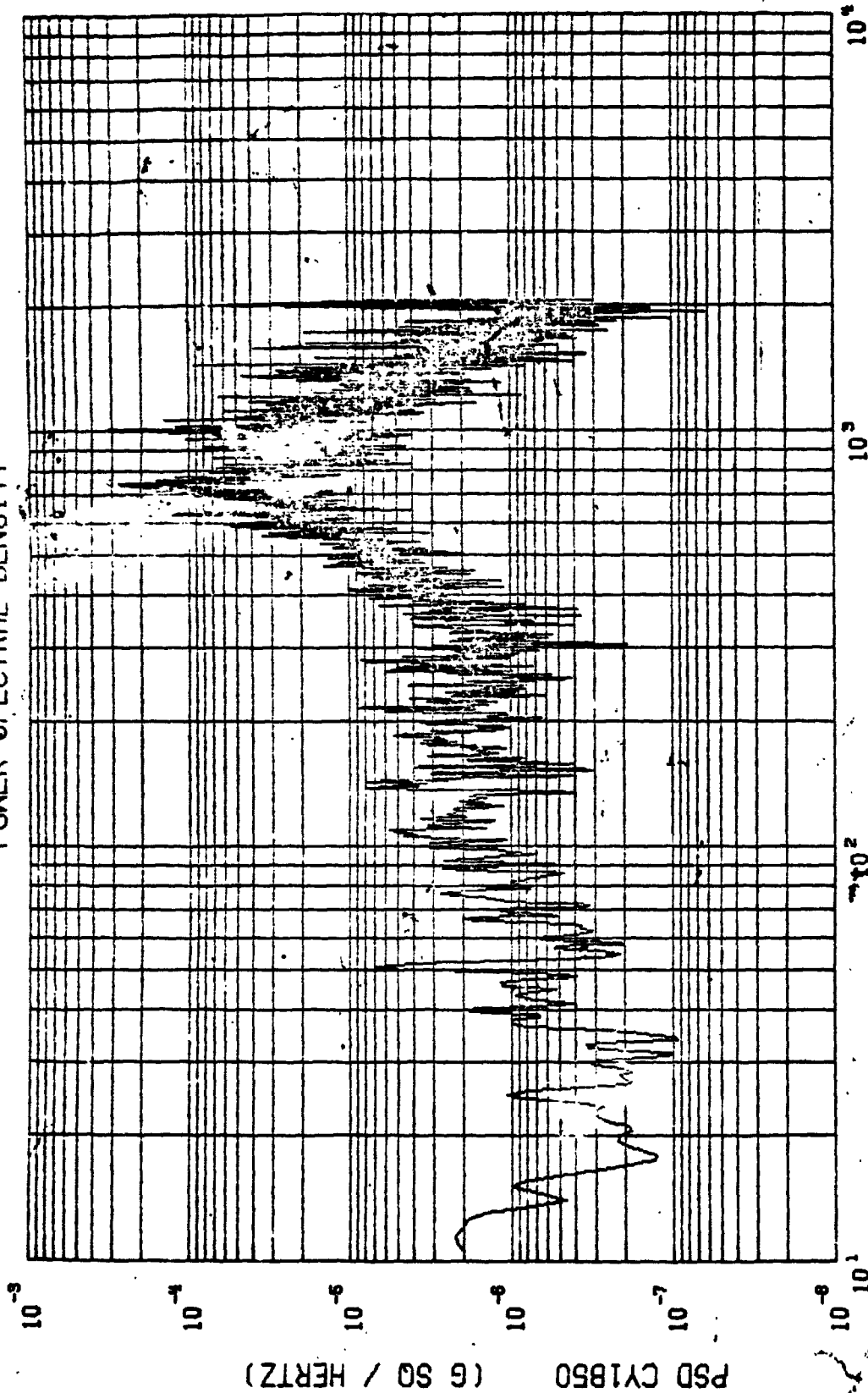
PRE-IGNITION

VIKING A FLT (CIF)

ORIGINAL PAGE IS
OF POOR QUALITY

Figure 3.5a

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .499$
 $MEAN = -86792 \times 10^{-4}$ $\sigma^2 = 28586 \times 10^{-4}$ $\sigma = 16907 \times 10^{-4}$ $3\sigma = 50722 \times 10^{-4}$
 $START = 76917.000 \text{ SEC}$ $STOP = 76919.000 \text{ SEC}$

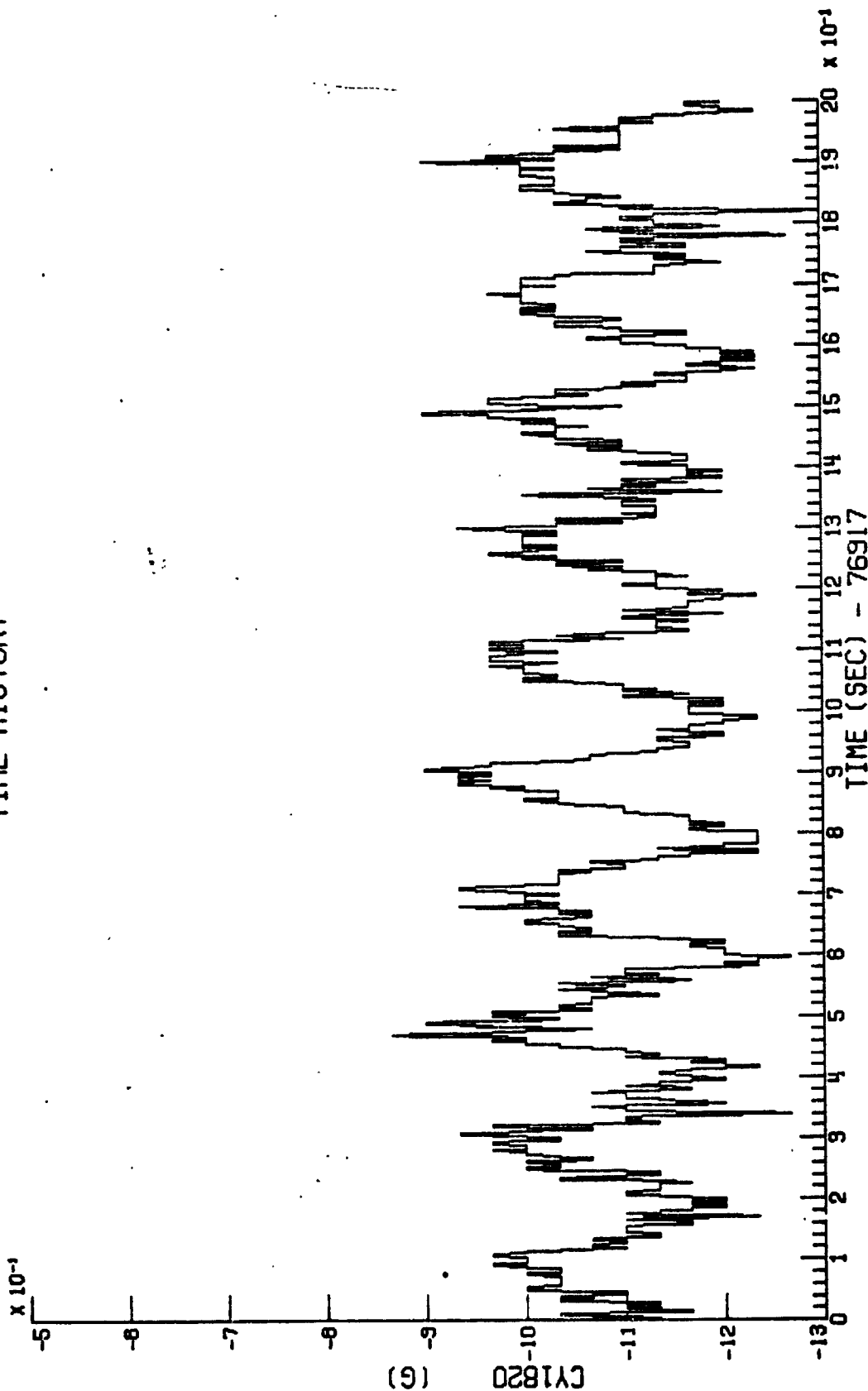
CY1850

PRE-IGNITION

VIKING A FLT (CIF)

Figure 3.5b

TIME HISTORY



ORIGINAL PAGE IS
OF POOR QUALITY

MIN = -1.400

MAX = -.866

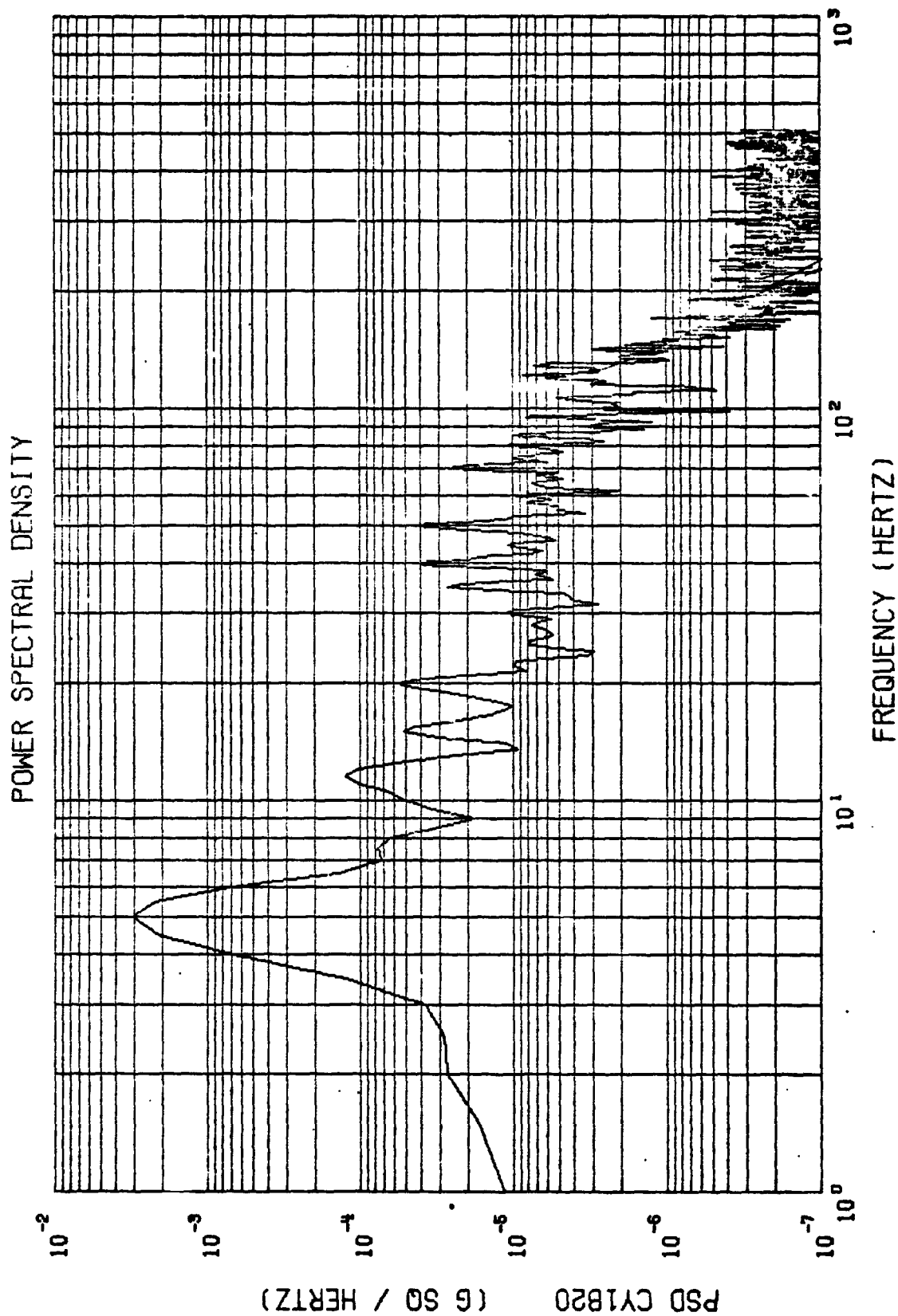
CY1820

PRE-IGNITION

VIKING A FLT (CIF)

Figure 3.6a

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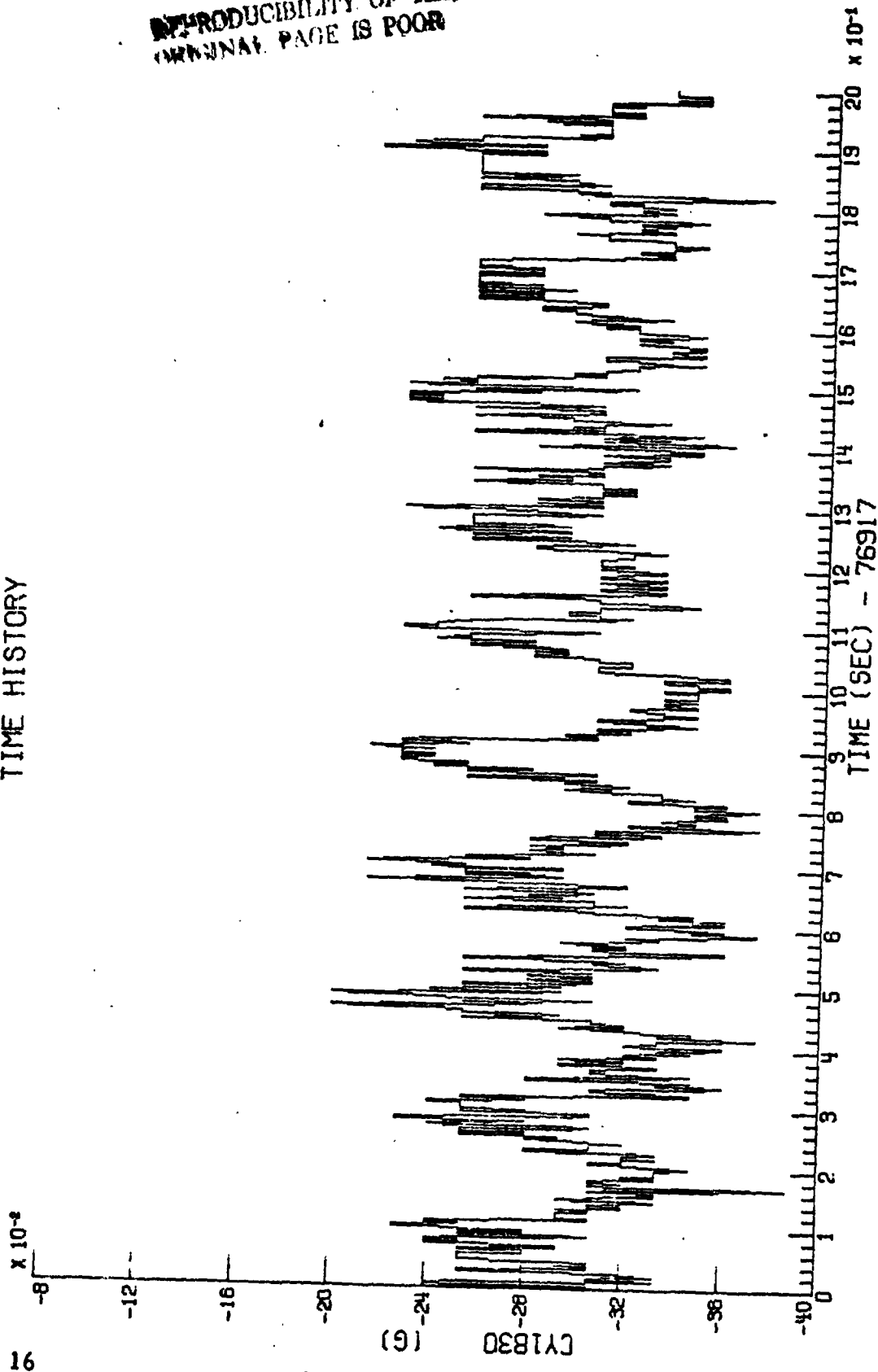


$\Delta F = .500$ START = 76917.000 SEC STOP = 76919.000 SEC
 MEAN = -10866×10^{-4} $\sigma^2 = 60865 \times 10^{-7}$ $\sigma = 78016 \times 10^{-5}$ $3\sigma = 23404 \times 10^{-5}$

VIKING A FLT (CIF) PRE-IGNITION CY1820

Figure 3.6b

TIME HISTORY



MAX = -.200

MIN = -.386

VIKING A FLT (CIF)

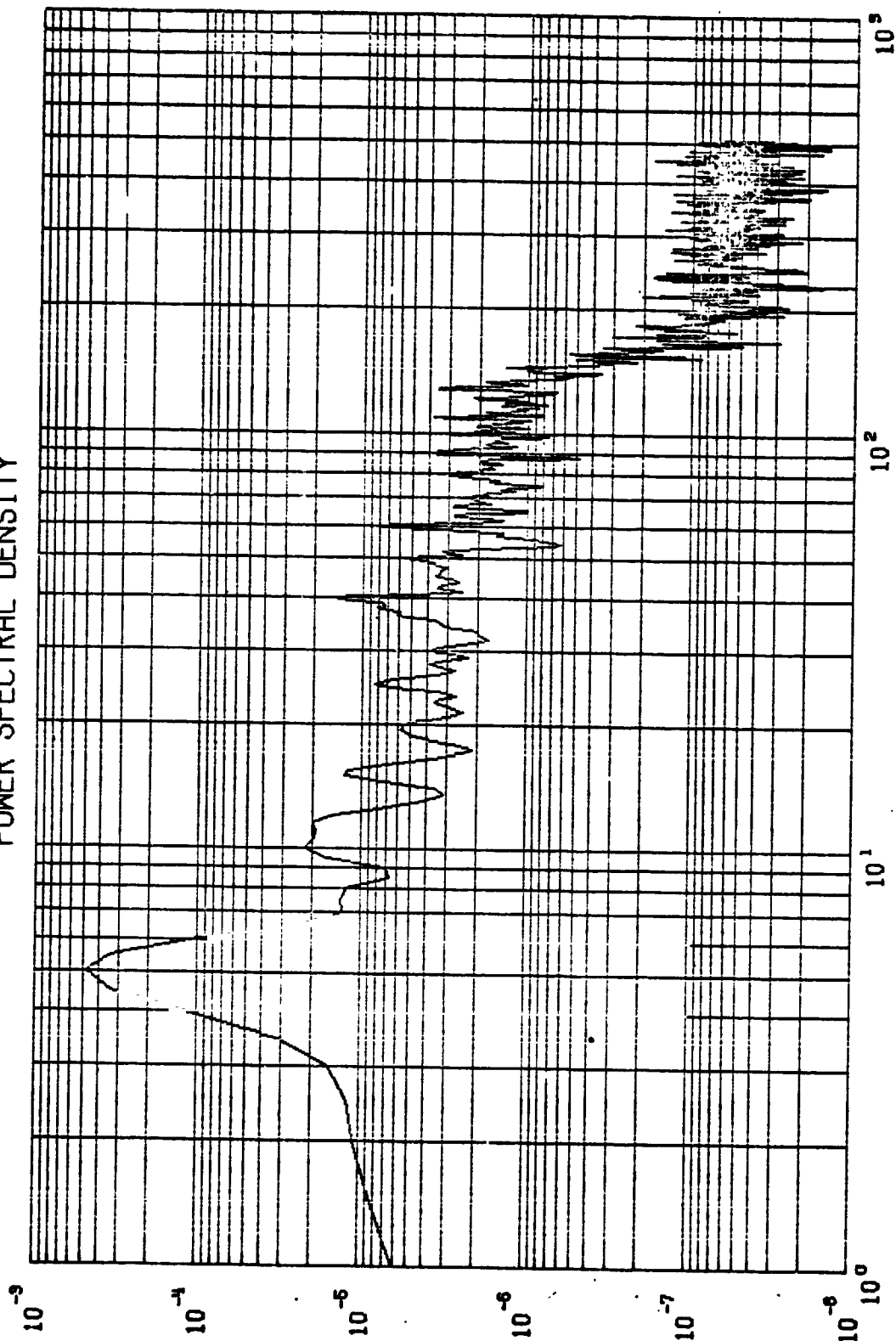
PRE-IGNITION

CY1830

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Figure 3.7a

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .500$

START = 76917.000 SEC

STOP = 76919.000 SEC

MEAN = -29844×10^{-6}

$\sigma^2 = 11919 \times 10^{-7}$

$\sigma = 34524 \times 10^{-4}$

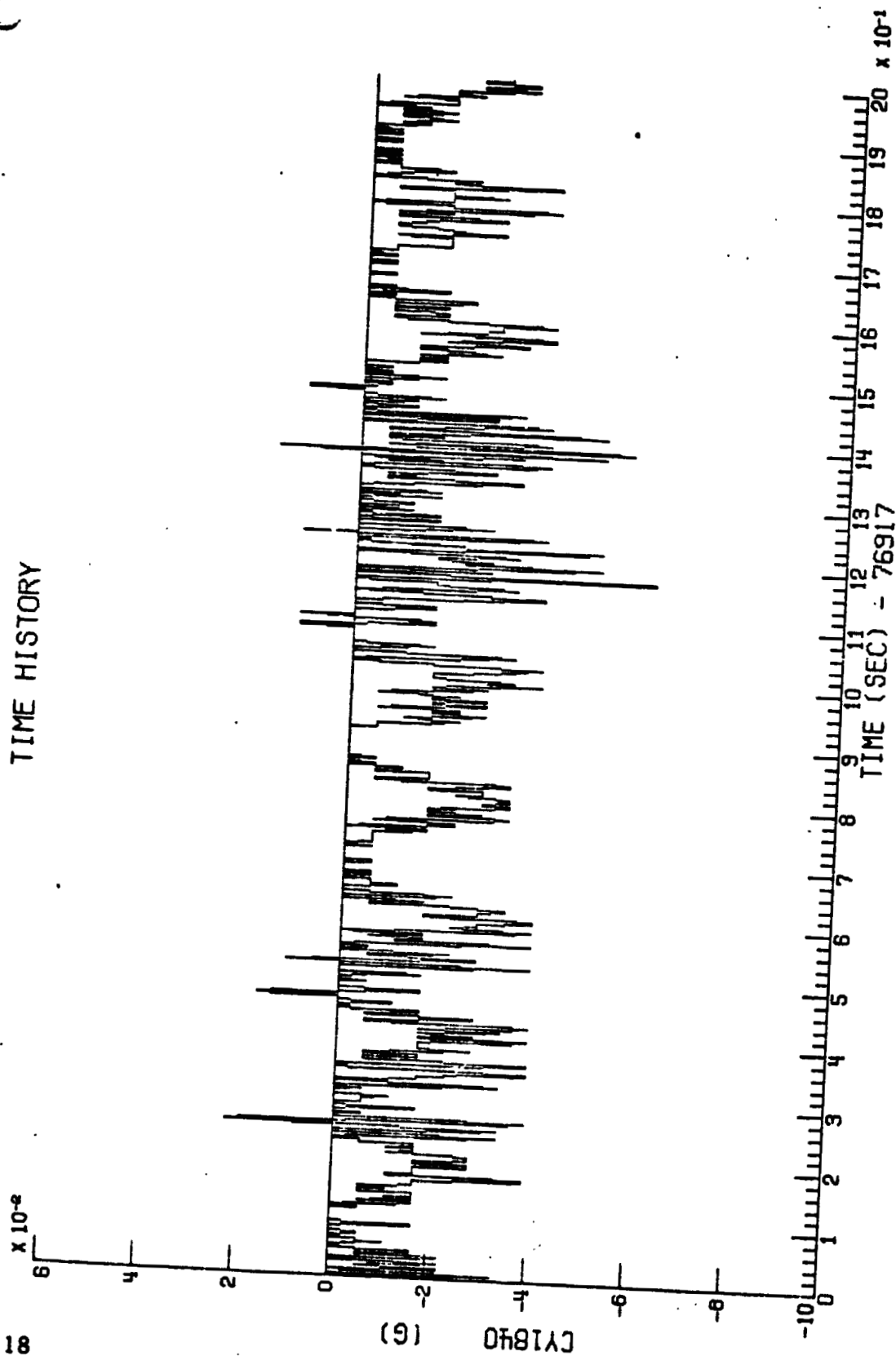
$9\sigma = 10357 \times 10^{-5}$

VIKING A FLT (CIF)

PRE-IGNITION

CY1830

TIME HISTORY



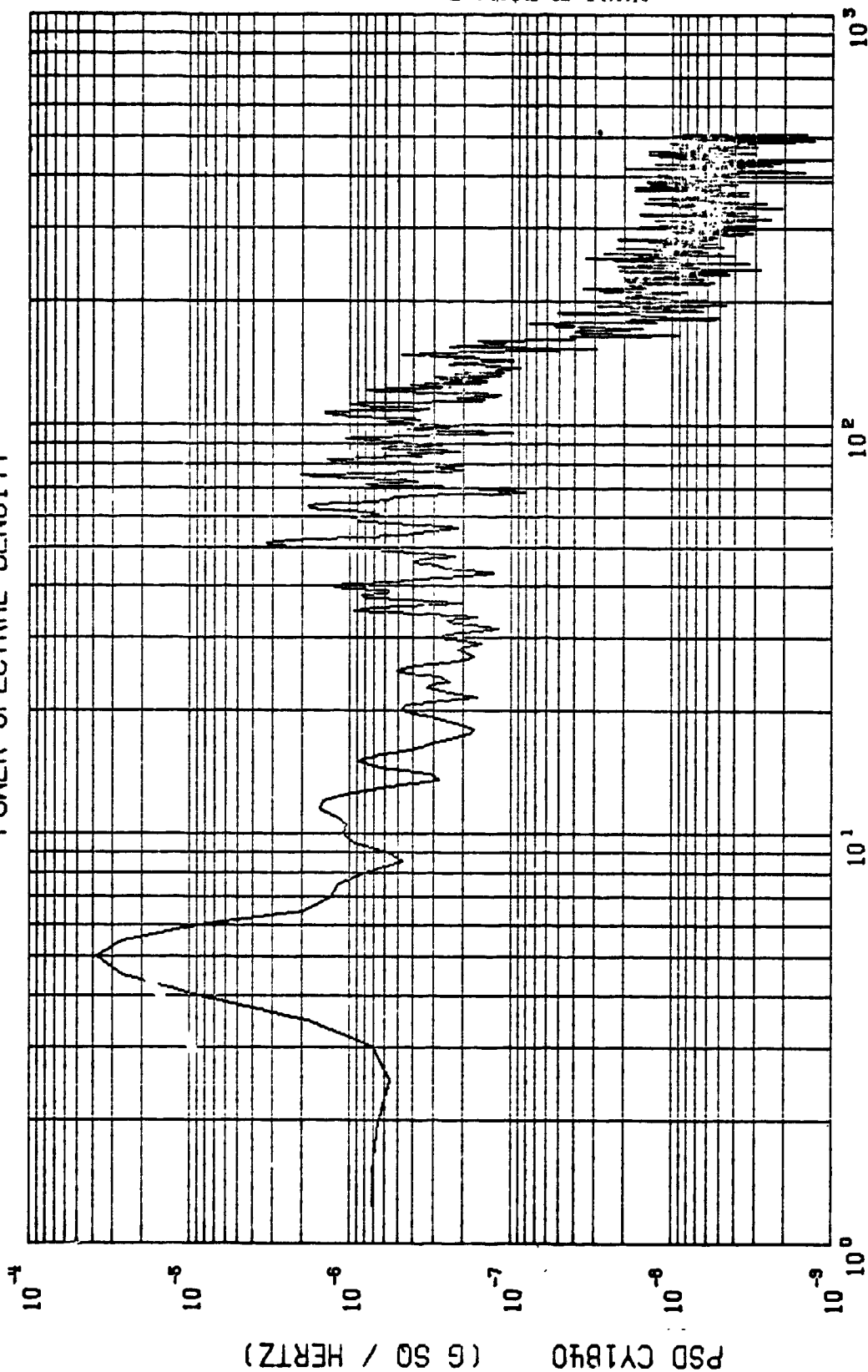
VIKING A FLT (CIF) PRE-IGNITION CY1840

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Figure 3.8a

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .500$ START = 76917.000 SEC STOP = 76919.000 SEC
 MEAN = -11823×10^{-8} $\sigma^2 = 13847 \times 10^{-8}$ $\sigma = 11767 \times 10^{-8}$ $3\sigma = 35303 \times 10^{-8}$

VIKING A FLT (CIF)

PRE-IGNITION

CY1840

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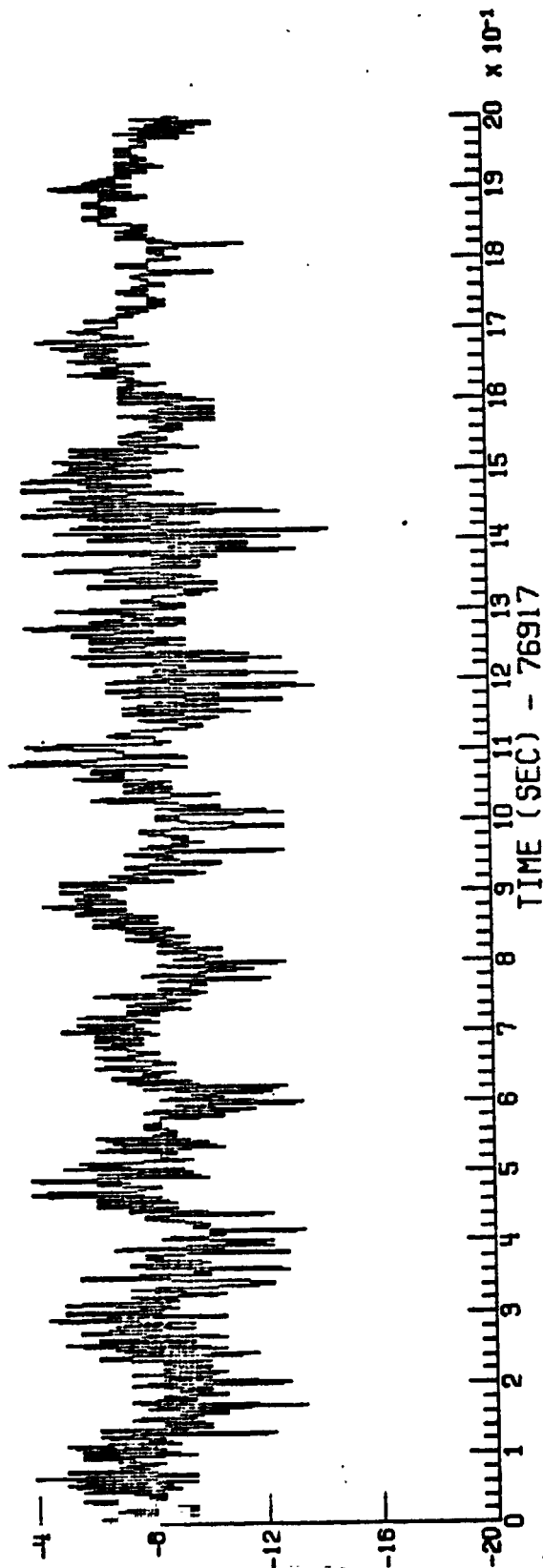
Figure 3.8b

TIME HISTORY

20
12
8
4
0

$\times 10^{-2}$

(g) CY1850



MAX = -.033

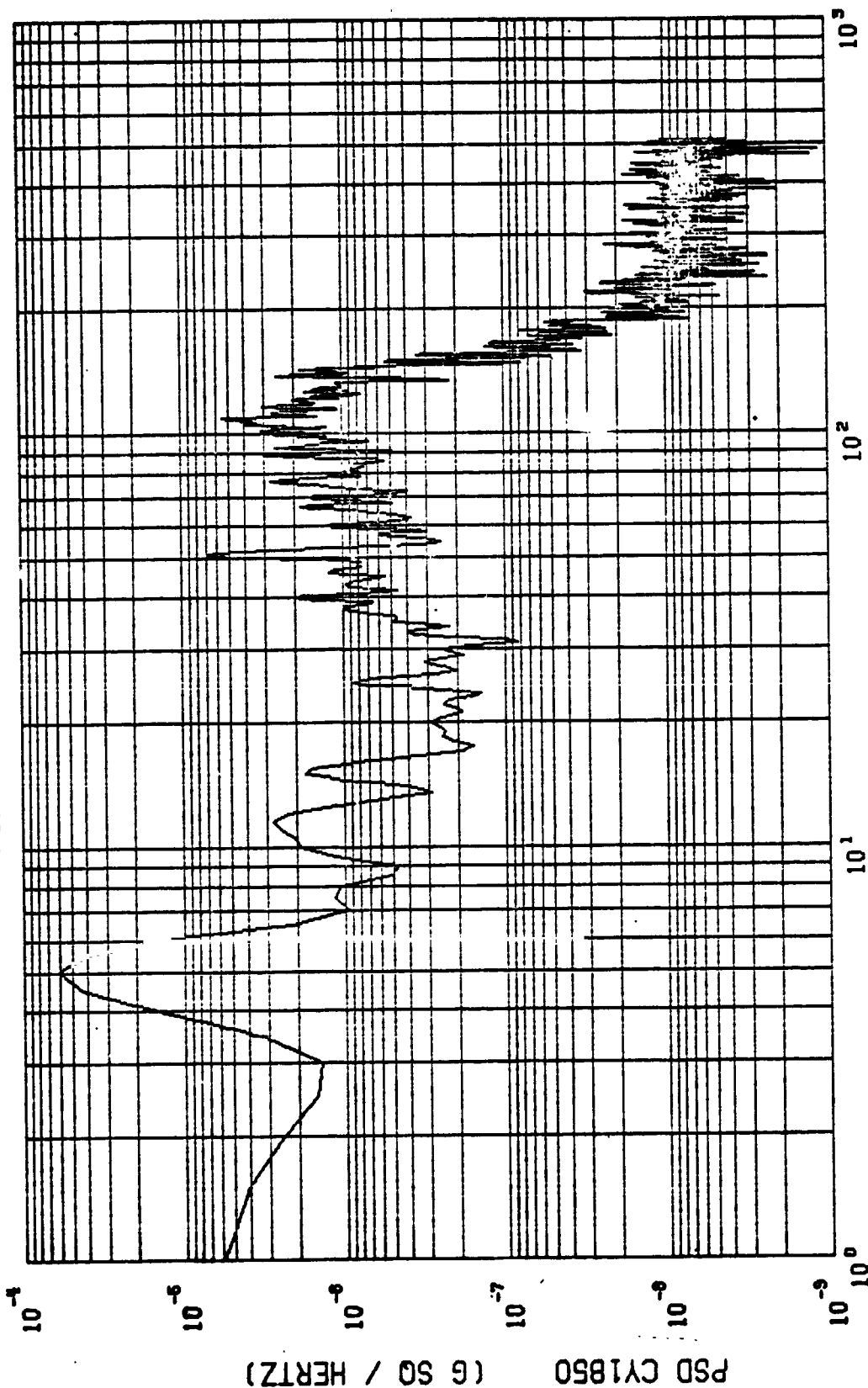
MIN = -.144

VIKING A FLT (CIF)

PRE-IGNITION

CY1850

POWER SPECTRAL DENSITY



$\Delta F = .500$

START = 76917.000 SEC

STOP = 76919.000 SEC

MEAN = -81645×10^{-4}

$\sigma^2 = 28956 \times 10^{-4}$

$\sigma = 17016 \times 10^{-4}$

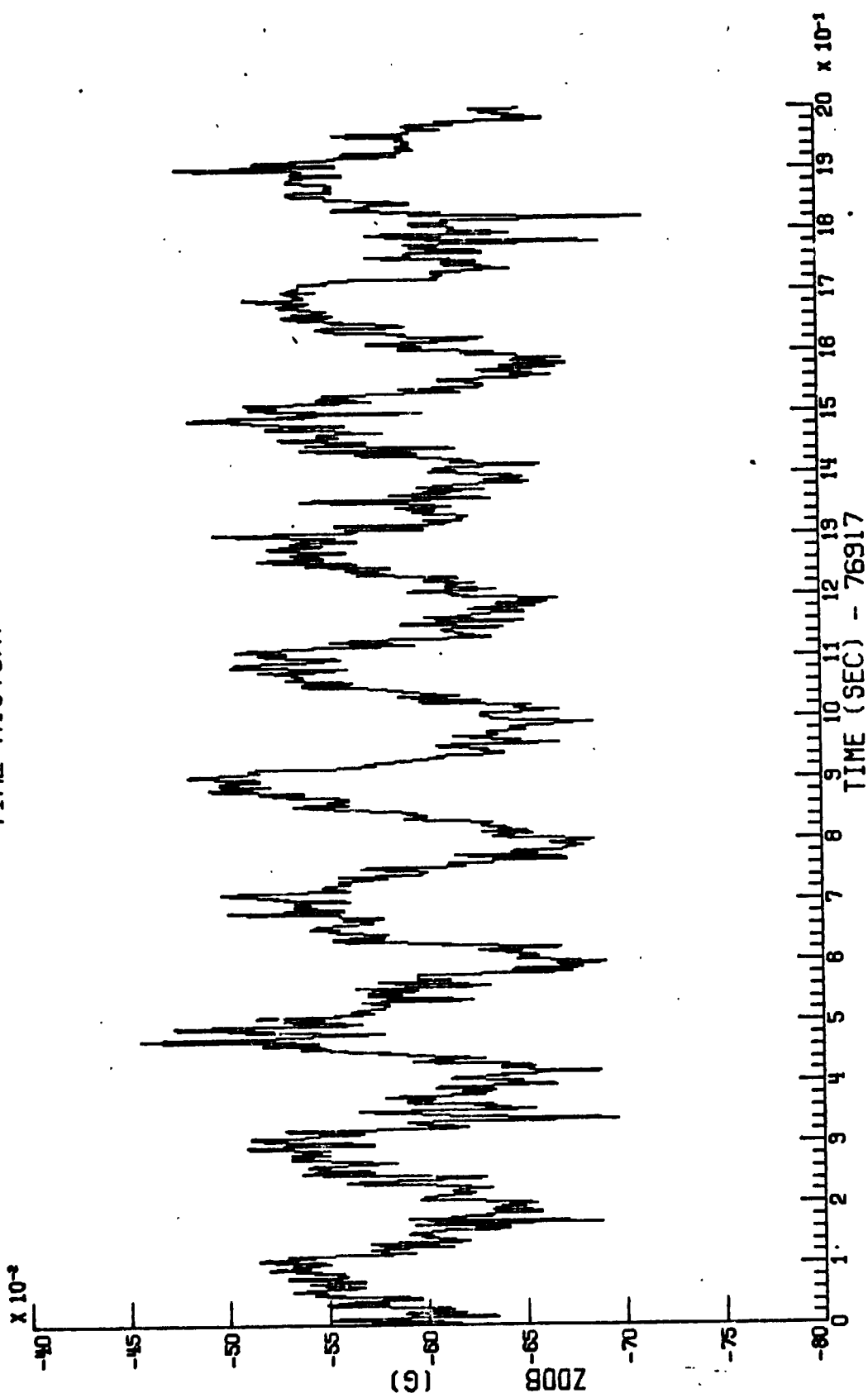
$3\sigma = 51049 \times 10^{-4}$

VIKING A FLT (CIF)

PRE-IGNITION

CY1850

TIME HISTORY



MAX = -.456

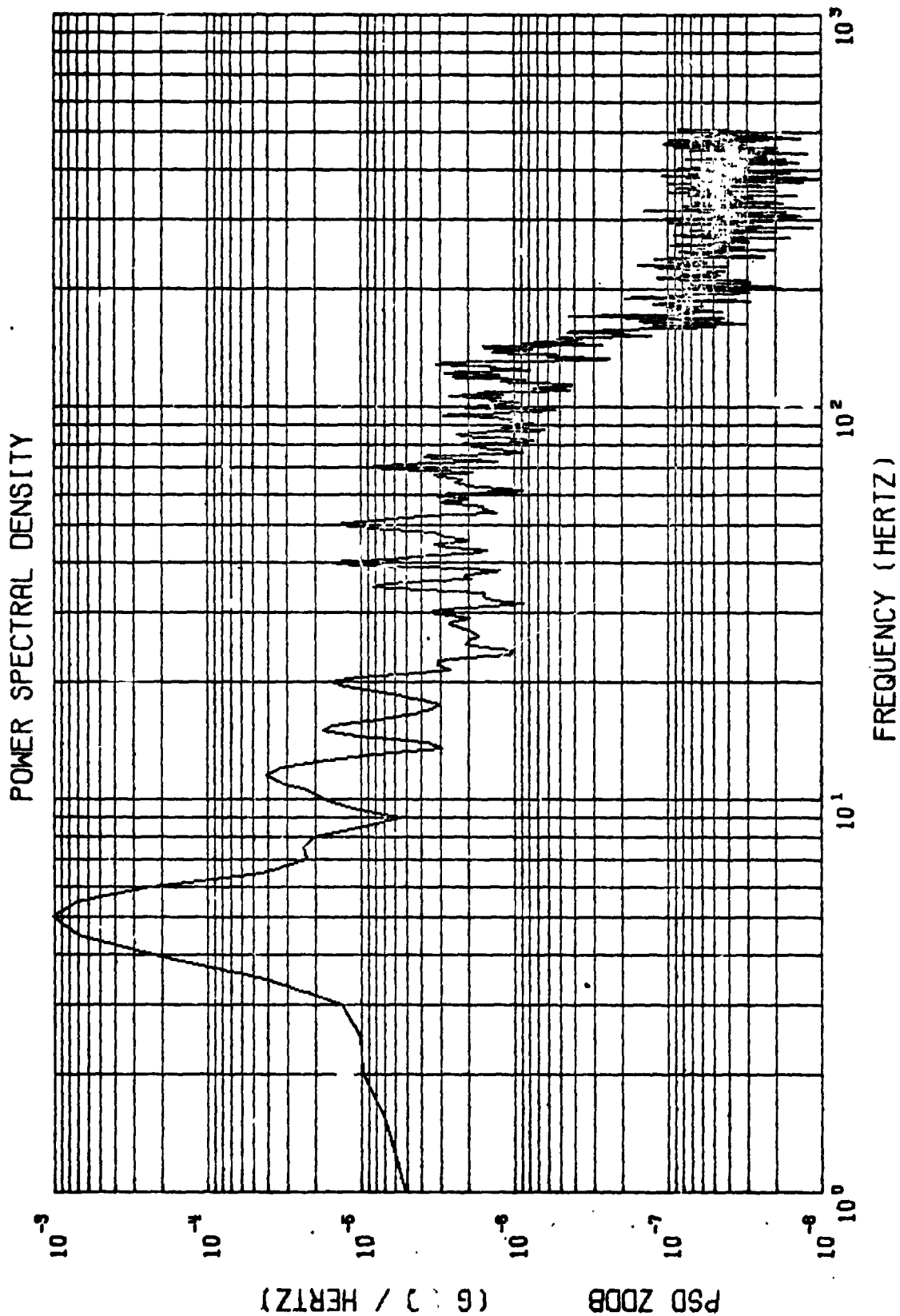
MIN = -.713

VIKING A FLT (CIF)

PRE-IGNITION

Z008

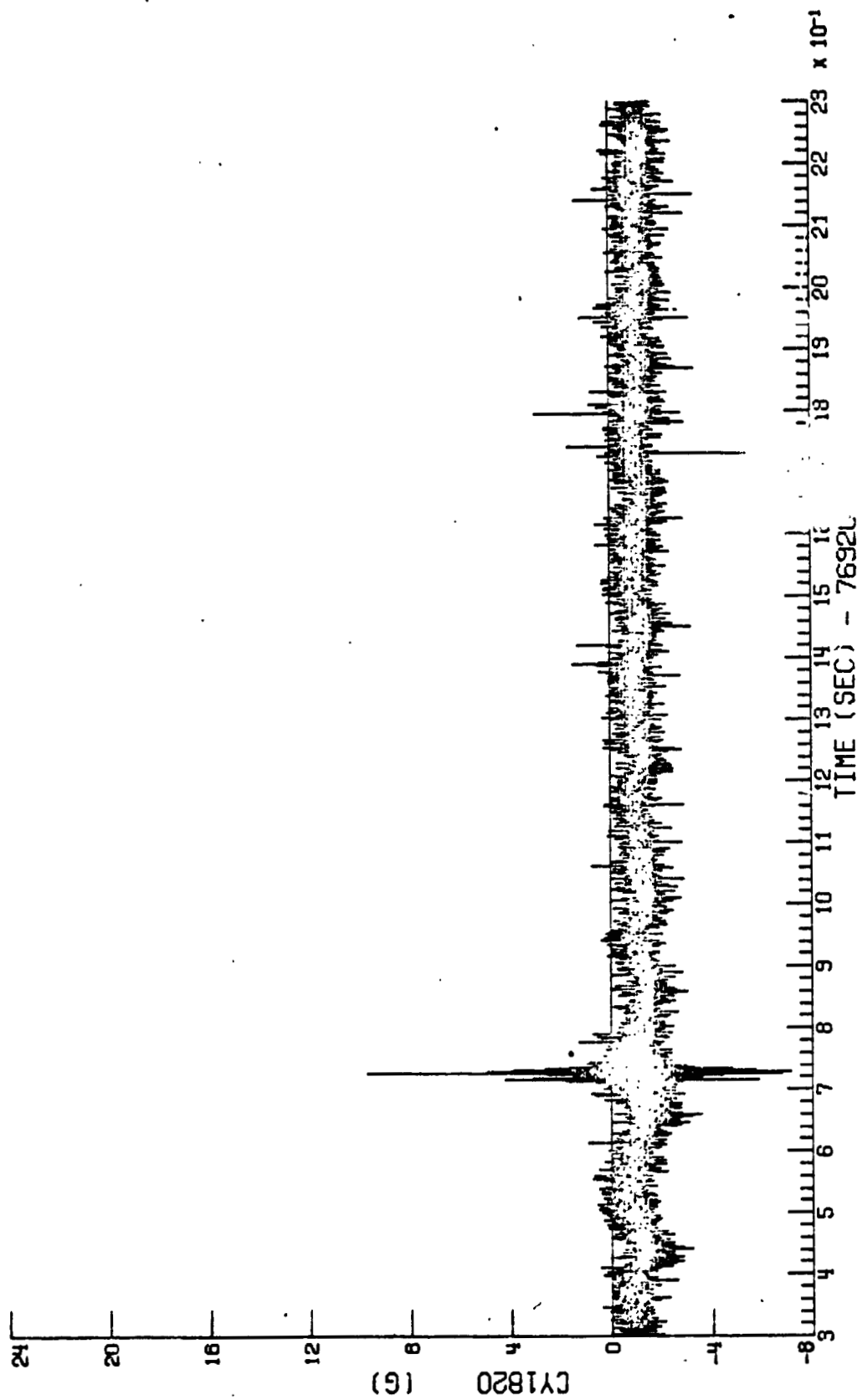
REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR



$\Delta F = .500$ START = 76917.000 SEC STOP = 76919.000 SEC
 MEAN = -5881×10^{-4} $\sigma^2 = 20183 \times 10^{-7}$ $\sigma = 44925 \times 10^{-4}$ $3\sigma = 13477 \times 10^{-4}$

VIKING A FLT (CIF) PRE-IGNITION ZODB

TIME HISTORY



MAX = 9.751

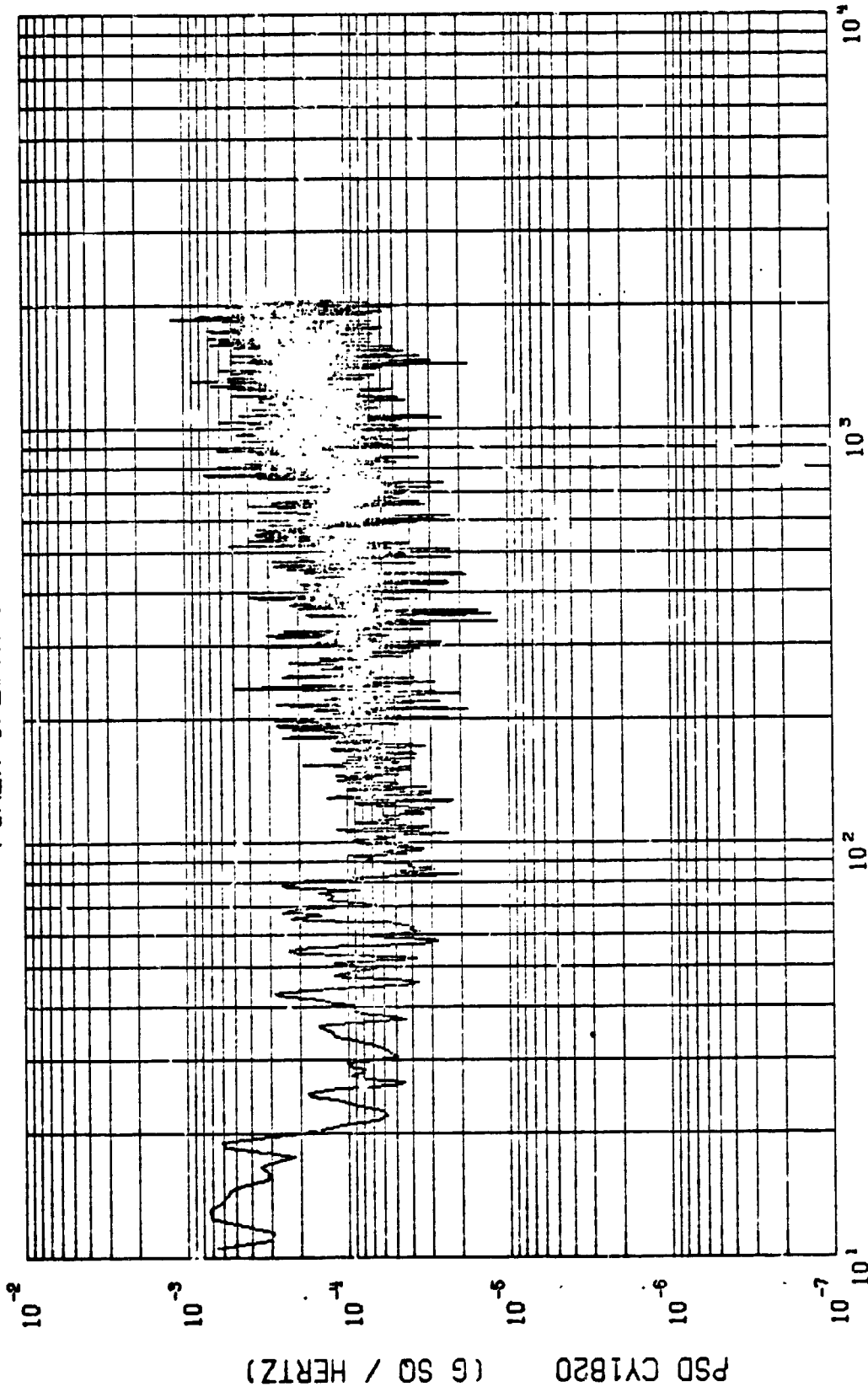
MIN = -7.113

VIKING A FLT (CIF)

STAGE 0 IGN

CY1820

POWER SPECTRAL DENSITY



$\Delta F = .499$

START = 76920.300 SEC

STOP = 76922.300 SEC

MEAN = -1.0744×10^{-4}

$\sigma^2 = 4.2037 \times 10^{-5}$

$\sigma = 6.4836 \times 10^{-5}$

$3\sigma = 1.945 \times 10^{-3}$

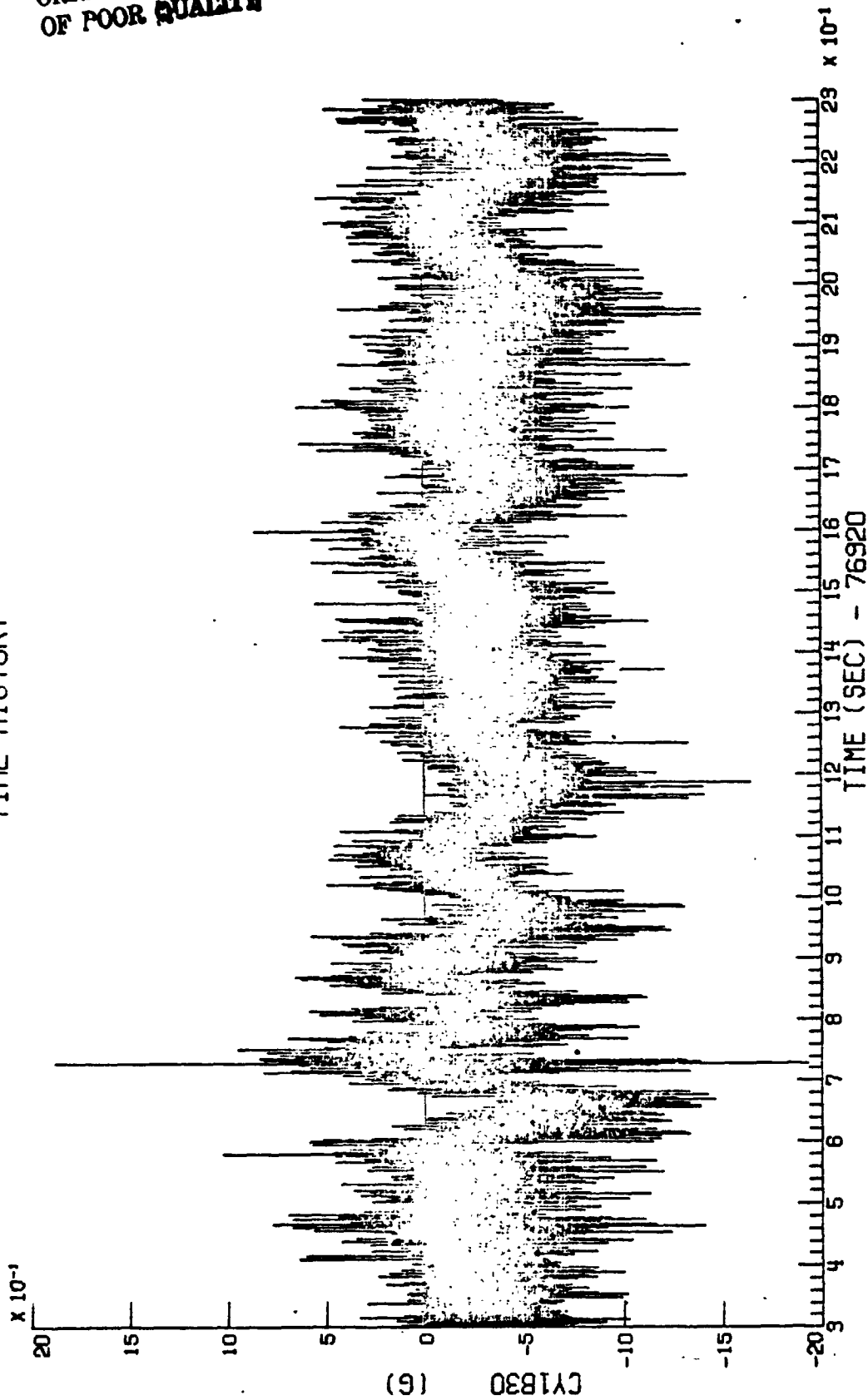
VIKING A FLT (CIF)

STAGE 0 IGN

CY1820

ORIGINAL PAGE IS
OF POOR QUALITY

TIME HISTORY



MAX = 1.876

MIN = -1.930

VIKING A FLT (CIF)

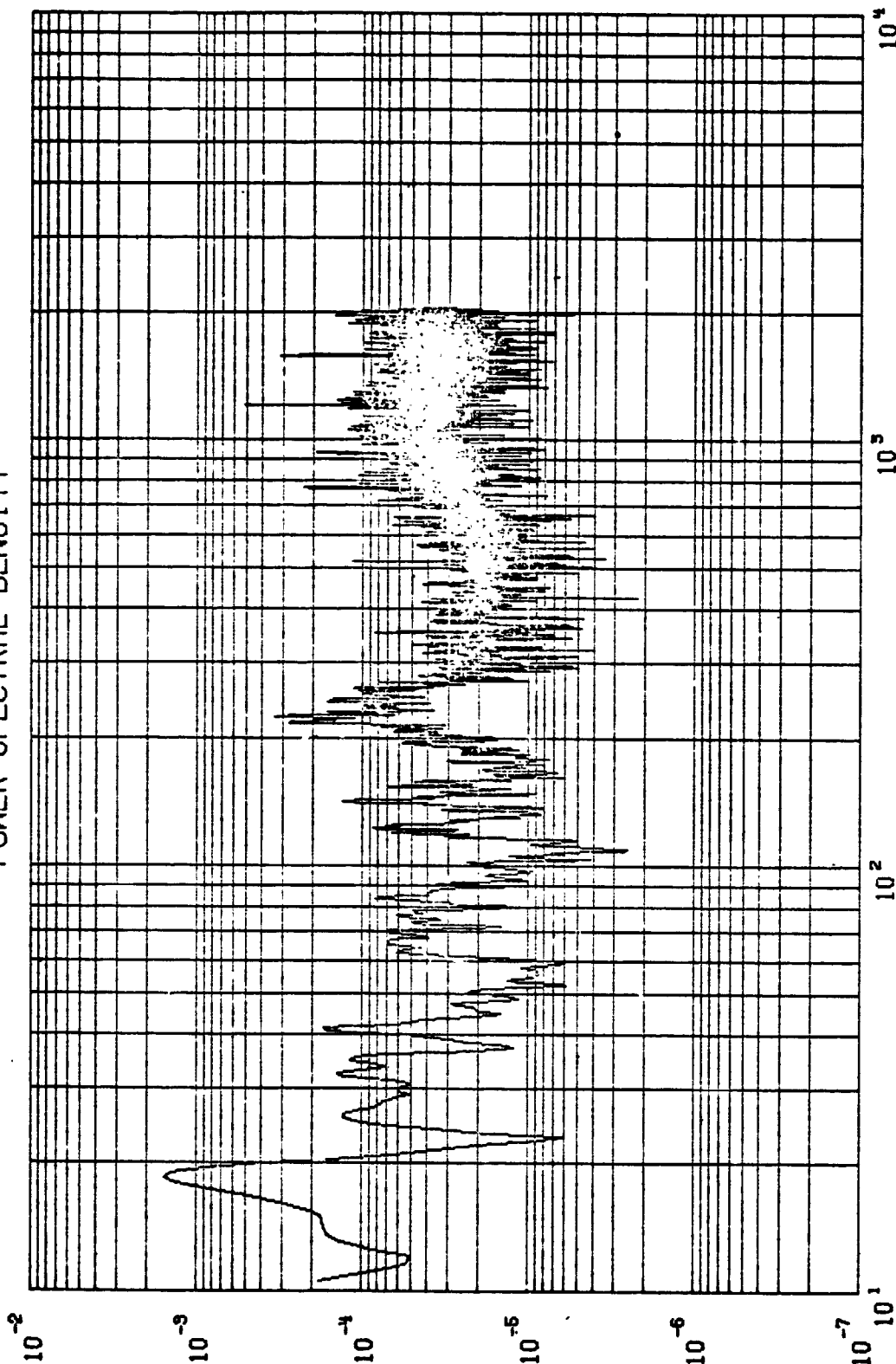
STAGE 0 IGN

CY1830

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Figure 3.12a

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .499$

START = 76920.300 SEC

STOP = 76922.300 SEC

MEAN = -29343×10^{-5}

$\sigma^2 = 10444 \times 10^{-5}$

$\sigma = 32317 \times 10^{-5}$

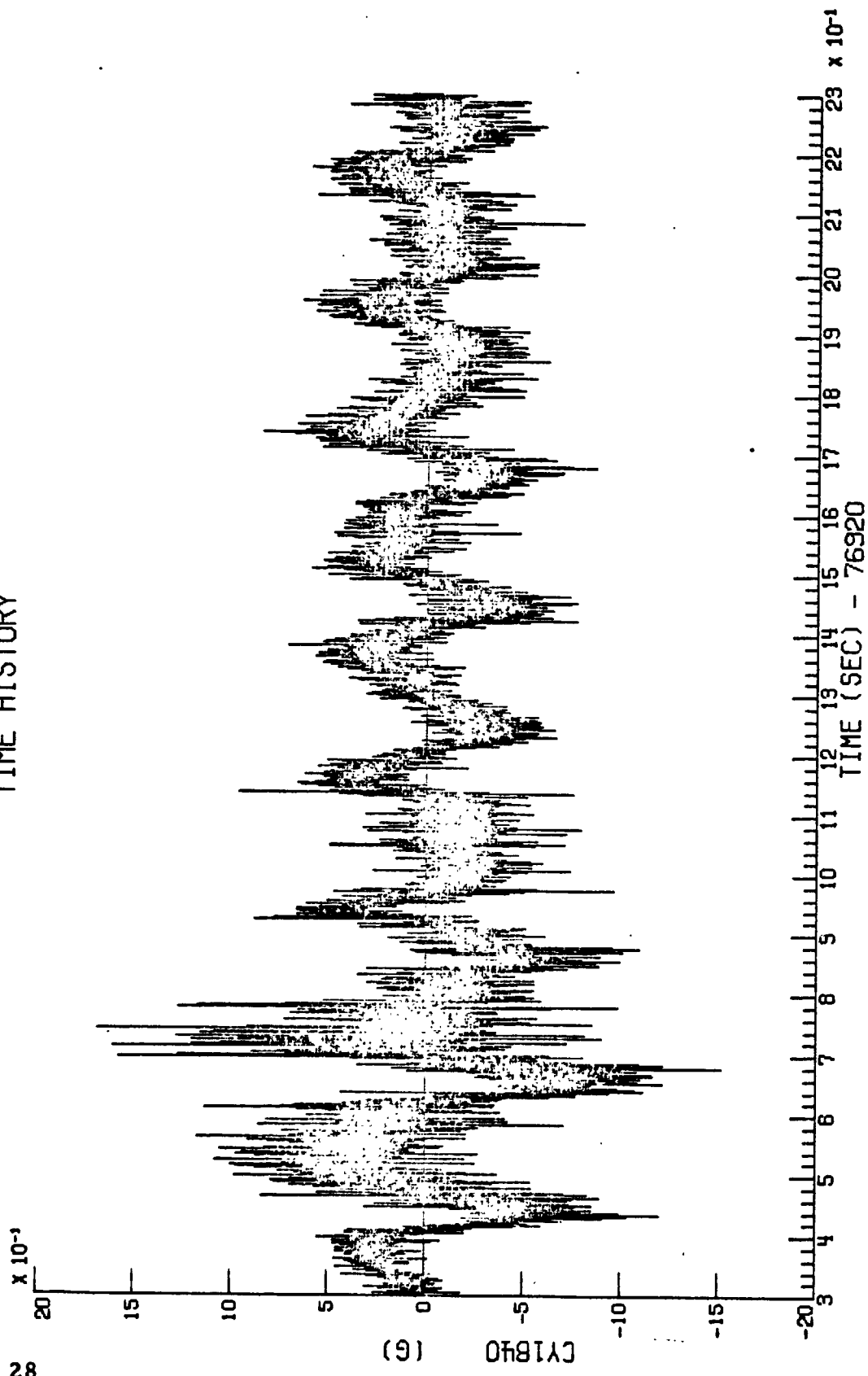
$3\sigma = 96952 \times 10^{-5}$

VIKING A FLT (CIF)

STAGE 0 IGN

CY1830

TIME HISTORY



MAX = 1.684

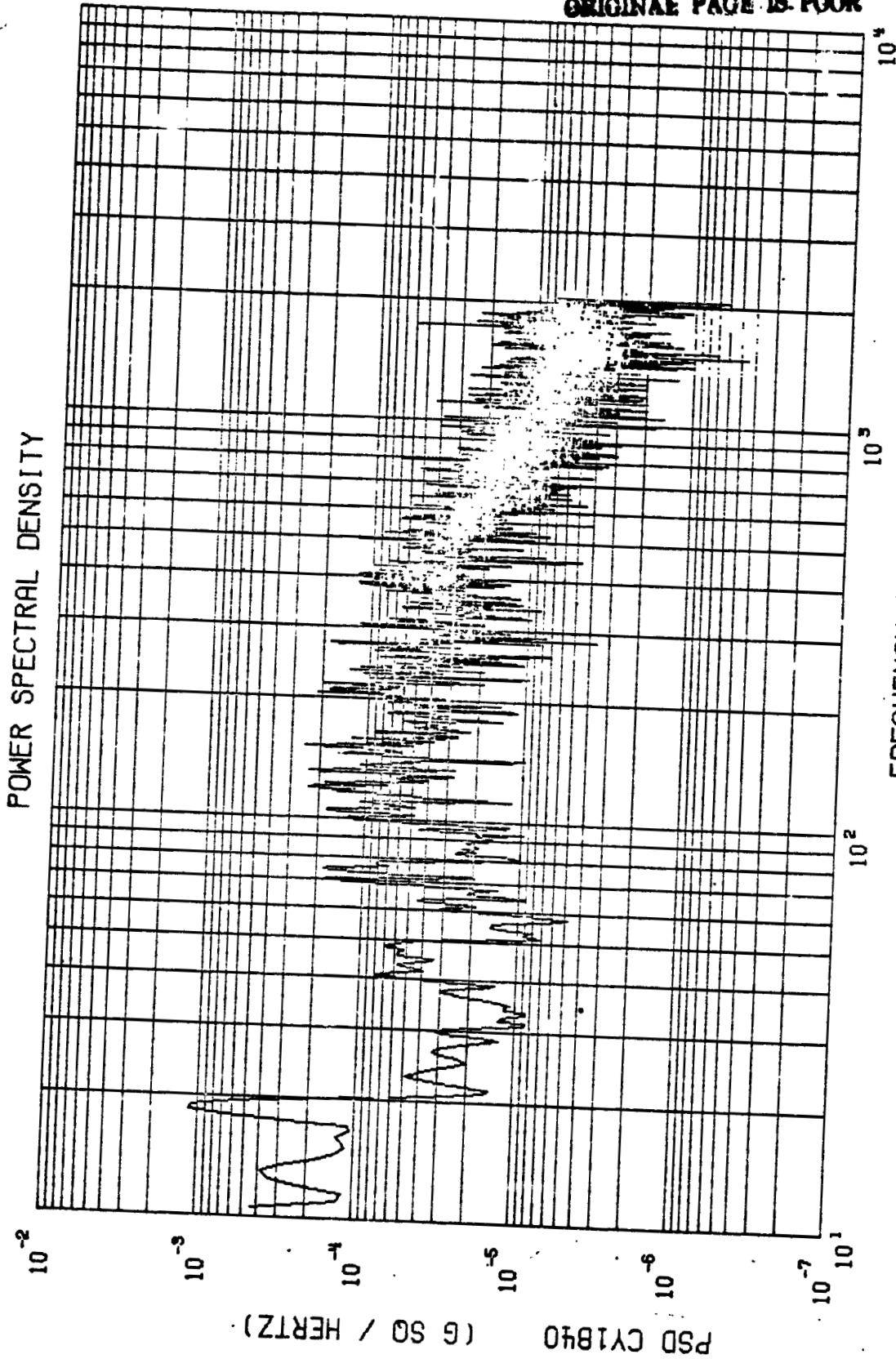
MIN = -1.511

VIKING A FLT (CIF)

STAGE 0 IGN

CY1840

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR



$\Delta F = .499$

START = 76920.300 SEC

STOP = 76922.300 SEC

MEAN = -20461×10^{-3}

$\sigma^2 = 98874 \times 10^{-5}$

$\sigma = 31444 \times 10^{-3}$

$3\sigma = 94332 \times 10^{-3}$

VIKING A FLT (CIF)

STAGE 0 IGN

CY1840

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Figure 3.13b

TIME HISTORY

30
20
15
10
5
0
-5
-10
-15
-20

$\times 10^{-1}$

CY1850 (g)



TIME (SEC) - 76920 $\times 10^{-1}$

MAX = 1.306

MIN = -1.395

VIKING A FLT (CIF)

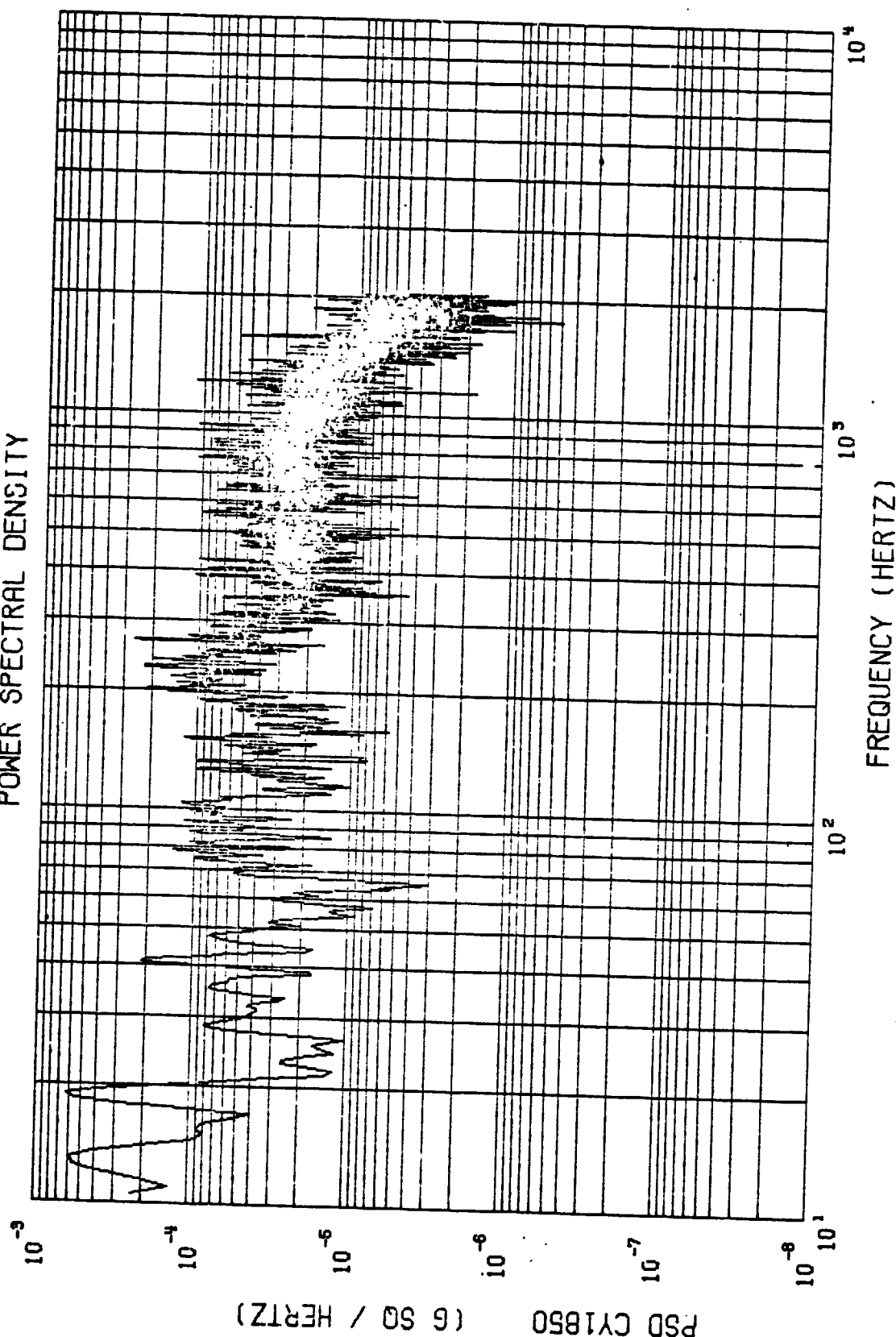
STAGE 0 IGN

CY1850

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Figure 3.14a

POWER SPECTRAL DENSITY



$\Delta F = .499$

START = 76920.300 SEC

STOP = 76922.300 SEC

MEAN = -90217×10^{-6} $\sigma^2 = 1062 \times 10^{-4}$

$\sigma = 32589 \times 10^{-3}$

$3\sigma = 97768 \times 10^{-3}$

VIKING A FLT (CIF)

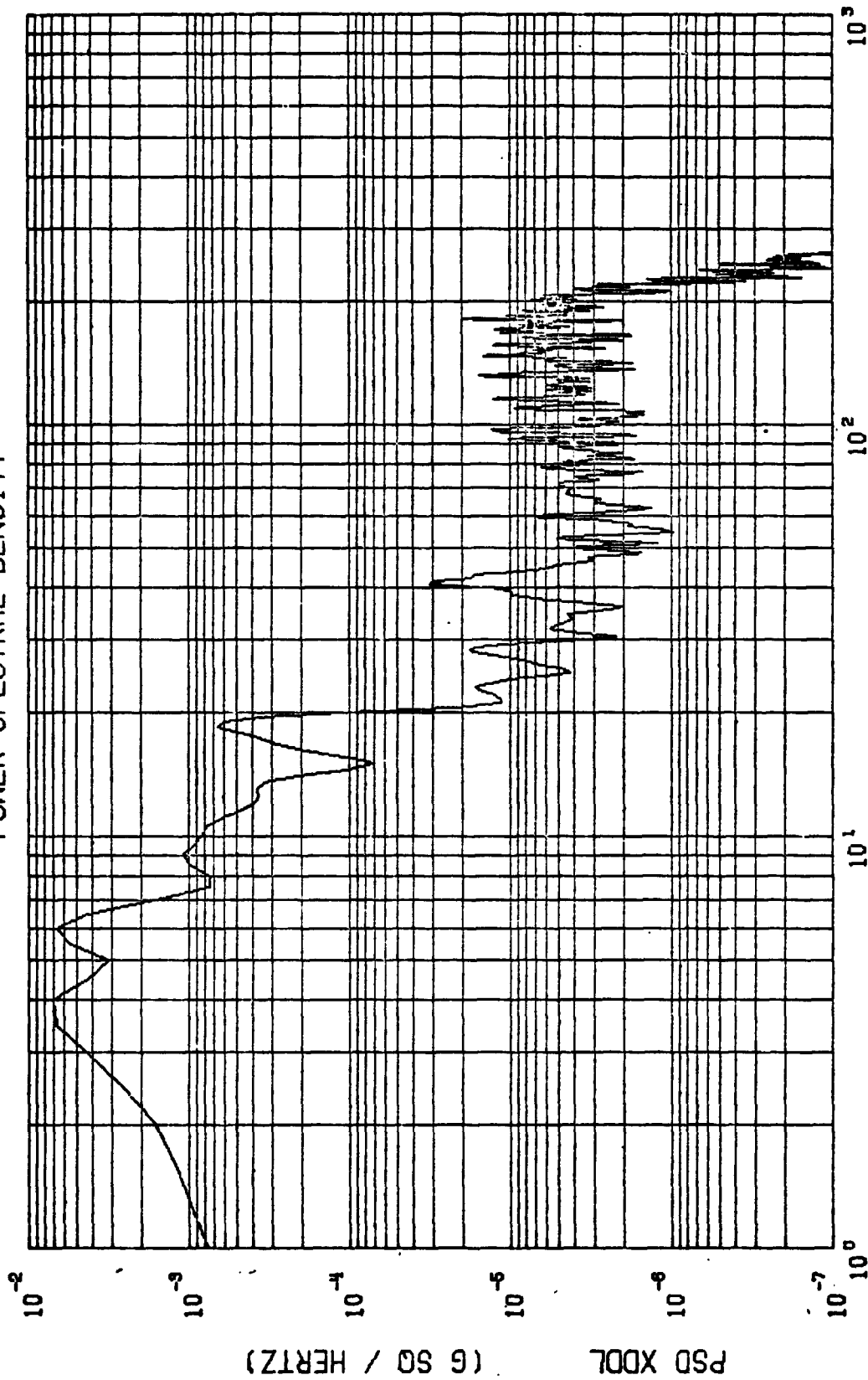
STAGE 0 IGN

CY1850

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Figure 3.14b

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

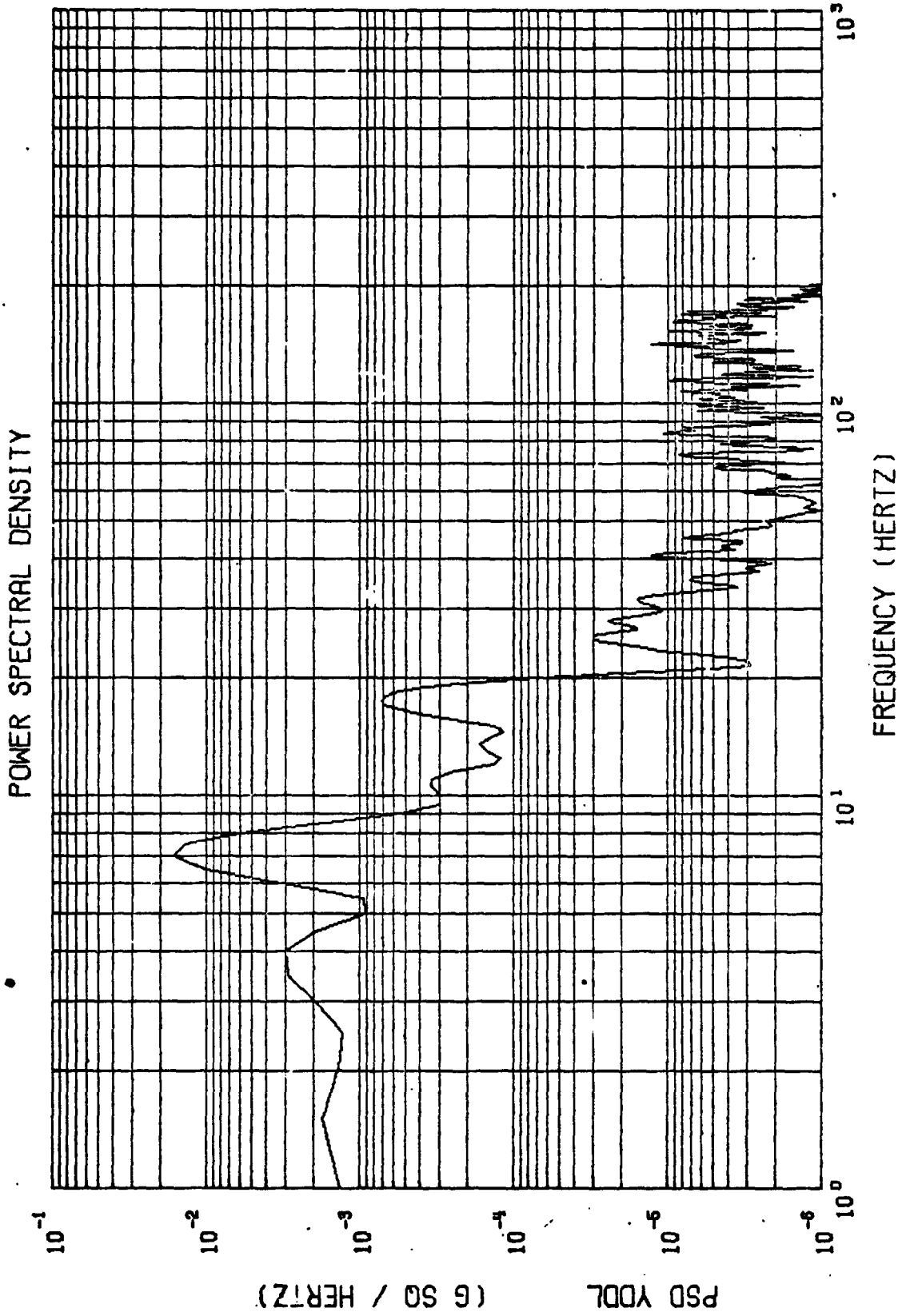
$\Delta F = .500$ START = 76920.300 SEC STOP = 76922.300 SEC
 MEAN = -20464×10^{-6} $\sigma^2 = 32715 \times 10^{-6}$ $\sigma = 18087 \times 10^{-3}$ $3\sigma = 54262 \times 10^{-3}$

VIKING A FLT (CIF)

STAGE 0 IGN

XDDL

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

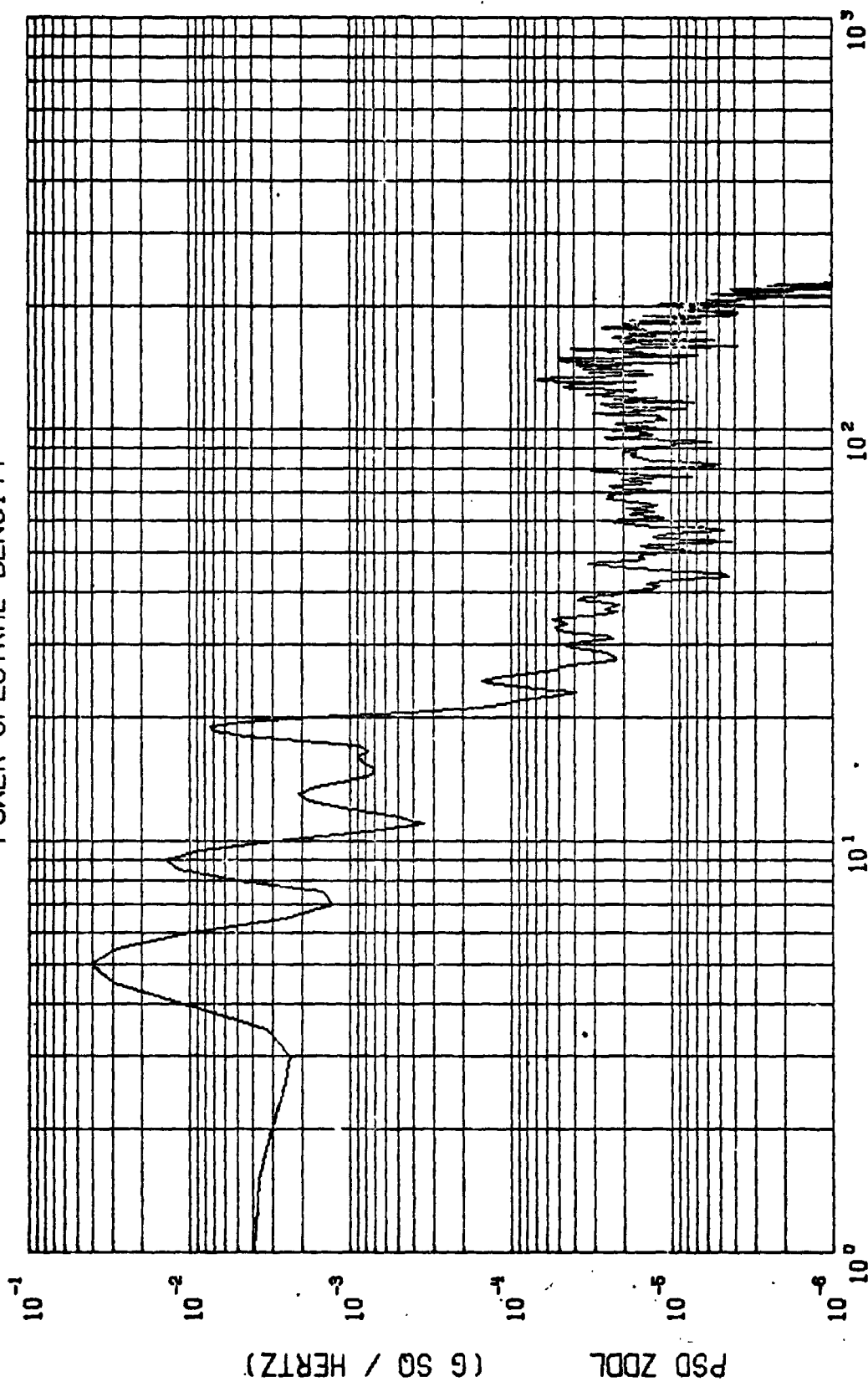


$\Delta F = .500$ START = 76920.300 SEC STOP = 76922.900 SEC
 MEAN = 1471×10^{-5} $\sigma^2 = 38939 \times 10^{-5}$ $\sigma = 19733 \times 10^{-5}$ $3\sigma = 59199 \times 10^{-5}$

VIKING A FLT (CIF) STAGE 0 IGN YDDL

Figure 3.16

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

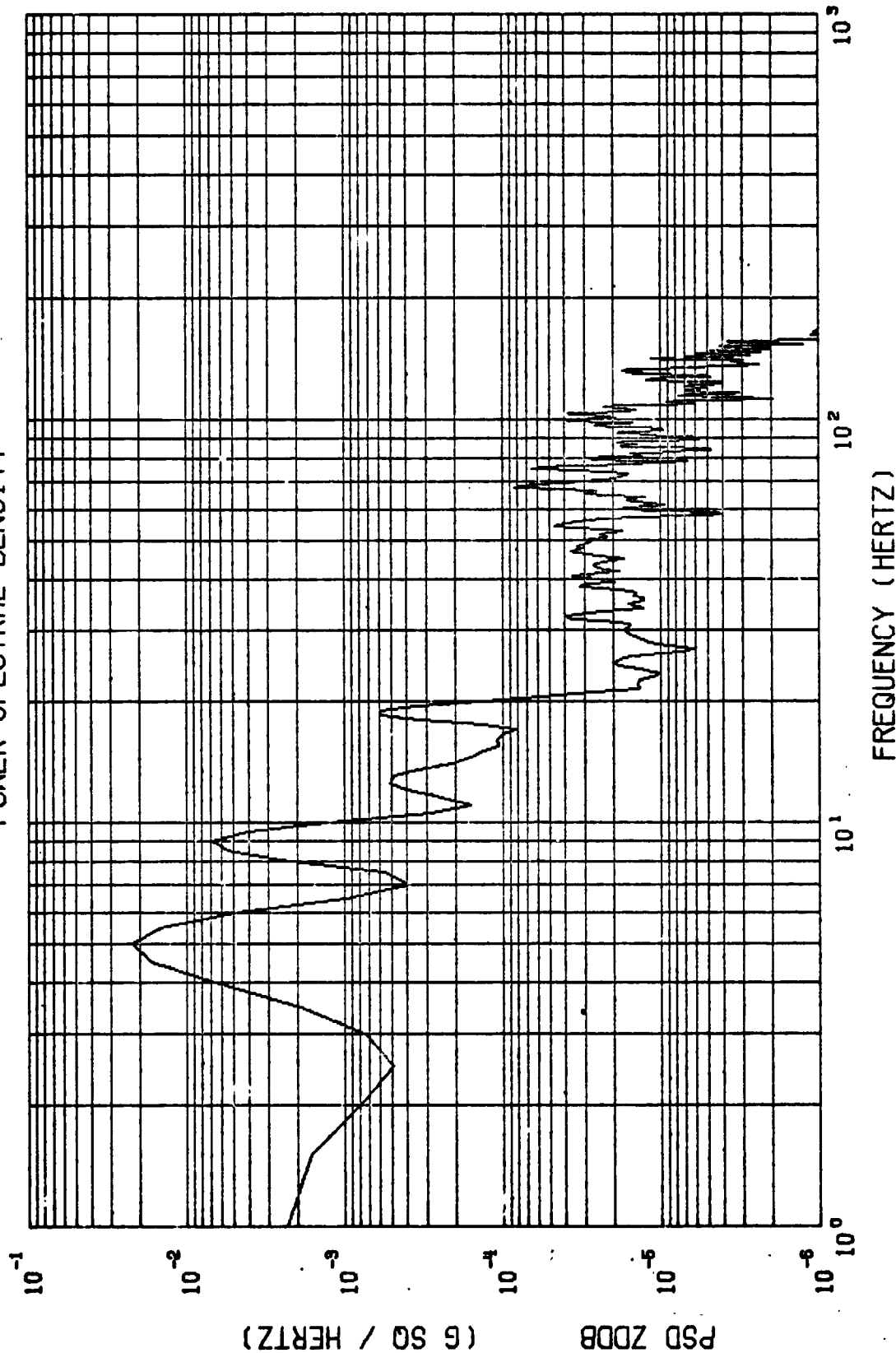
$\Delta F = .500$
 $MEAN = 16366 \times 10^{-3}$
 $START = 76920.300 \text{ SEC}$
 $\sigma = 12107 \times 10^{-5}$
 $STOP = 76922.300 \text{ SEC}$
 $\sigma = 34796 \times 10^{-4}$
 $3\sigma = 10438 \times 10^{-3}$

VIKING A FLT (CIF) STAGE 0 IGN ZDDL

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Figure 3.17

POWER SPECTRAL DENSITY



$\Delta F = .500$

START = 76920.300 SEC

STOP = 76922.300 SEC

MEAN = -59274×10^{-5}

$\sigma^2 = 53753 \times 10^{-5}$

$\sigma = 23184 \times 10^{-5}$

$3\sigma = 69554 \times 10^{-5}$

VIKING A FLT (CIF)

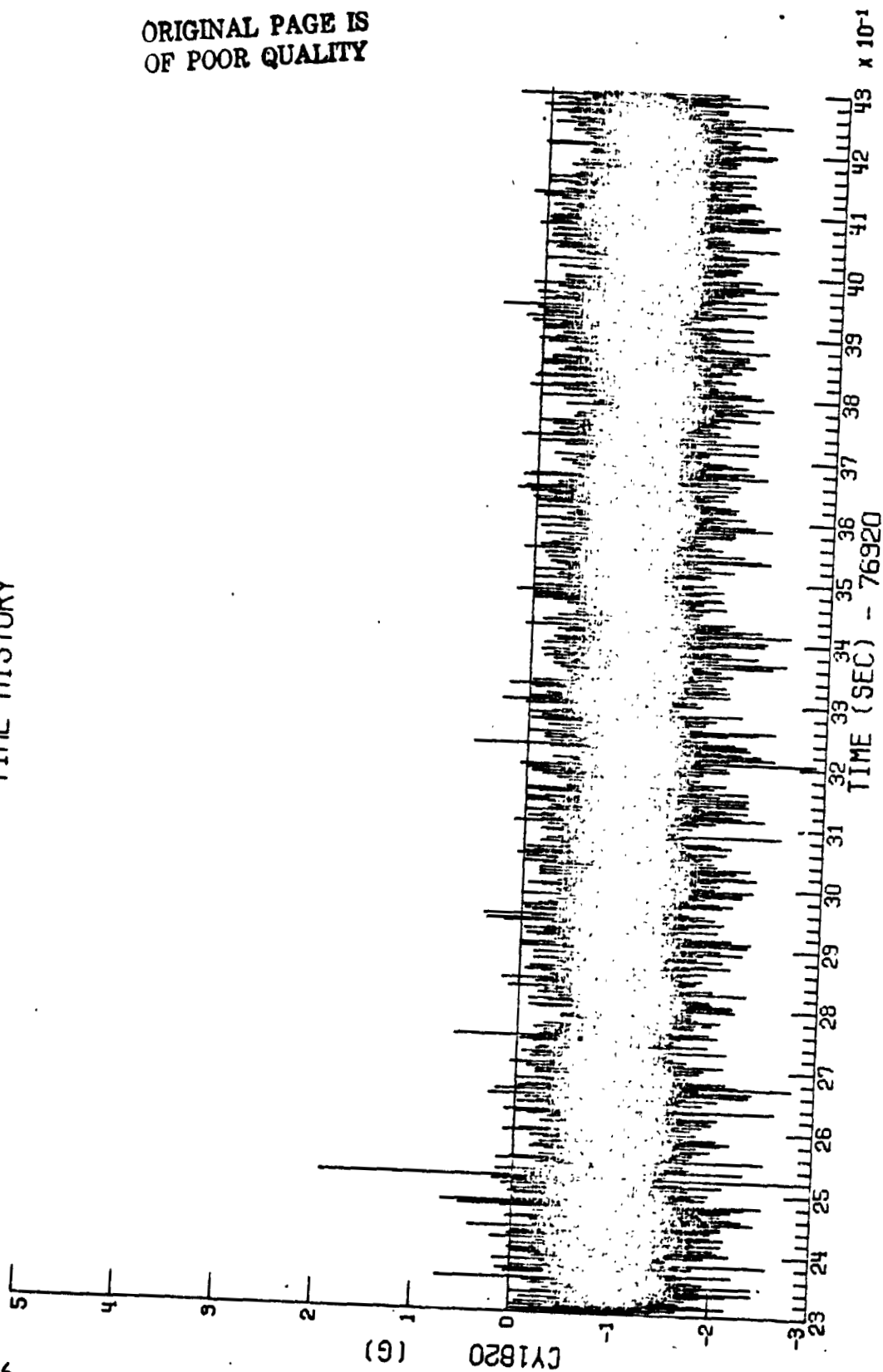
STAGE 0 IGN

Z008

Figure 3.18

TIME HISTORY

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OF POOR QUALITY



MAX = 1.936

MIN = -2.905

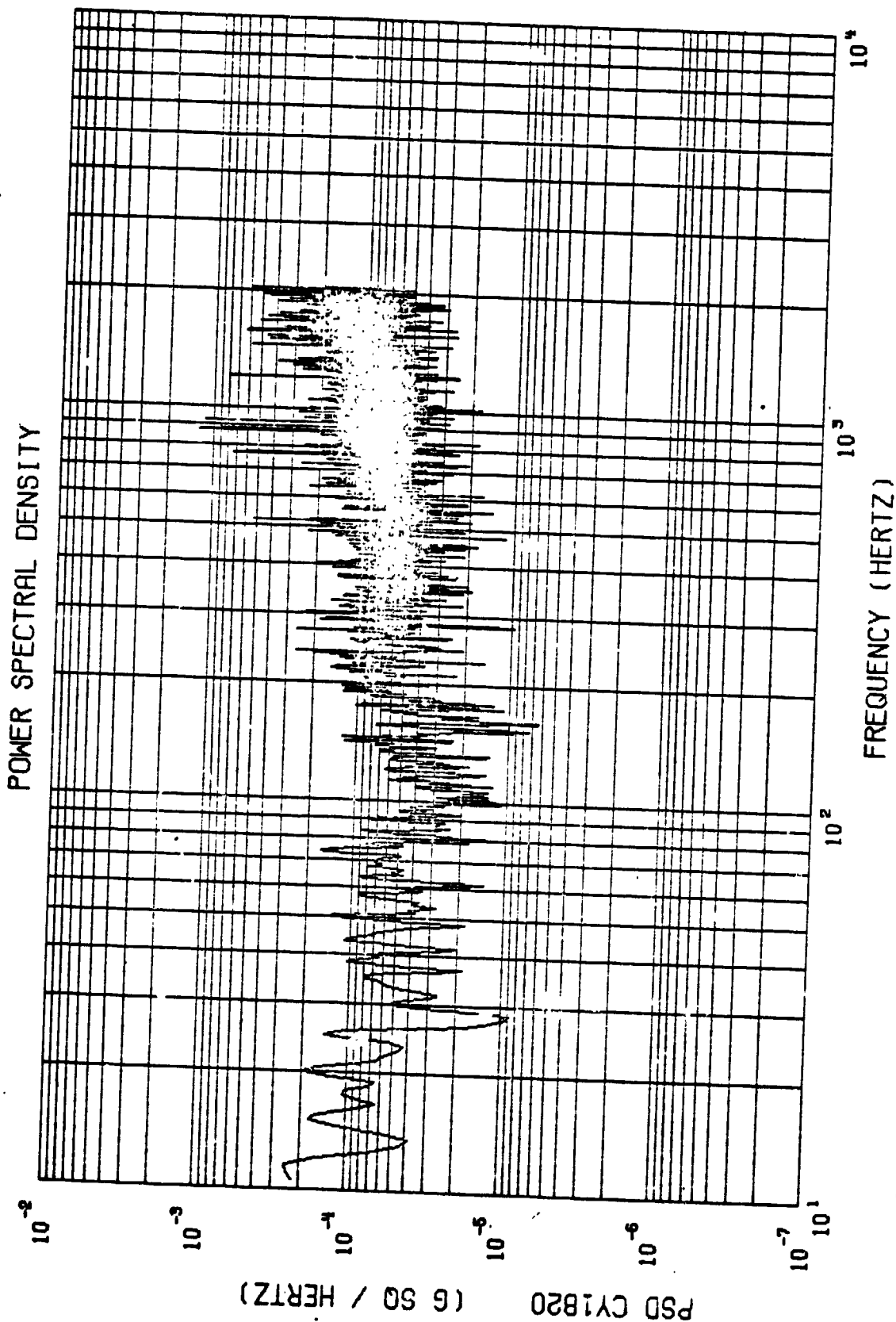
VIKING A FLT (CIF)

STAGE 0 IGN

CY1820

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.19a



$\Delta F = .499$

START = 76922.300 SEC STOP = 76924.298 SEC

MEAN = -10632×10^{-4} $\sigma^2 = 22208 \times 10^{-5}$ $\sigma = 47125 \times 10^{-5}$ $3\sigma = 14137 \times 10^{-5}$

VIKING A FLT (CIF)

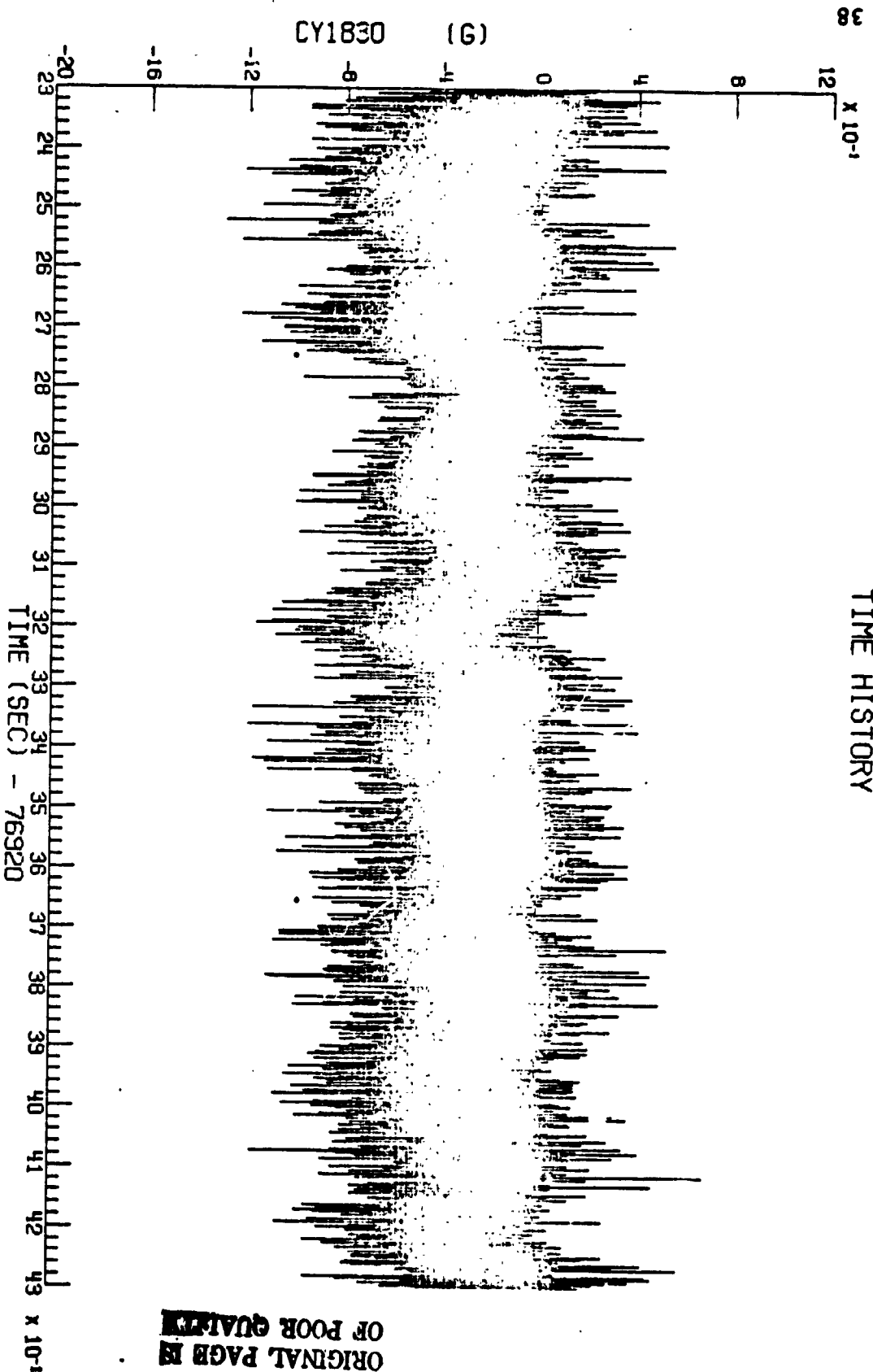
STAGE 0 IGN

CY1820

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.19b

TIME HISTORY



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OF POOR QUALITY

MAX = .692

MIN = -1.291

VIKING A FLT (CIF)

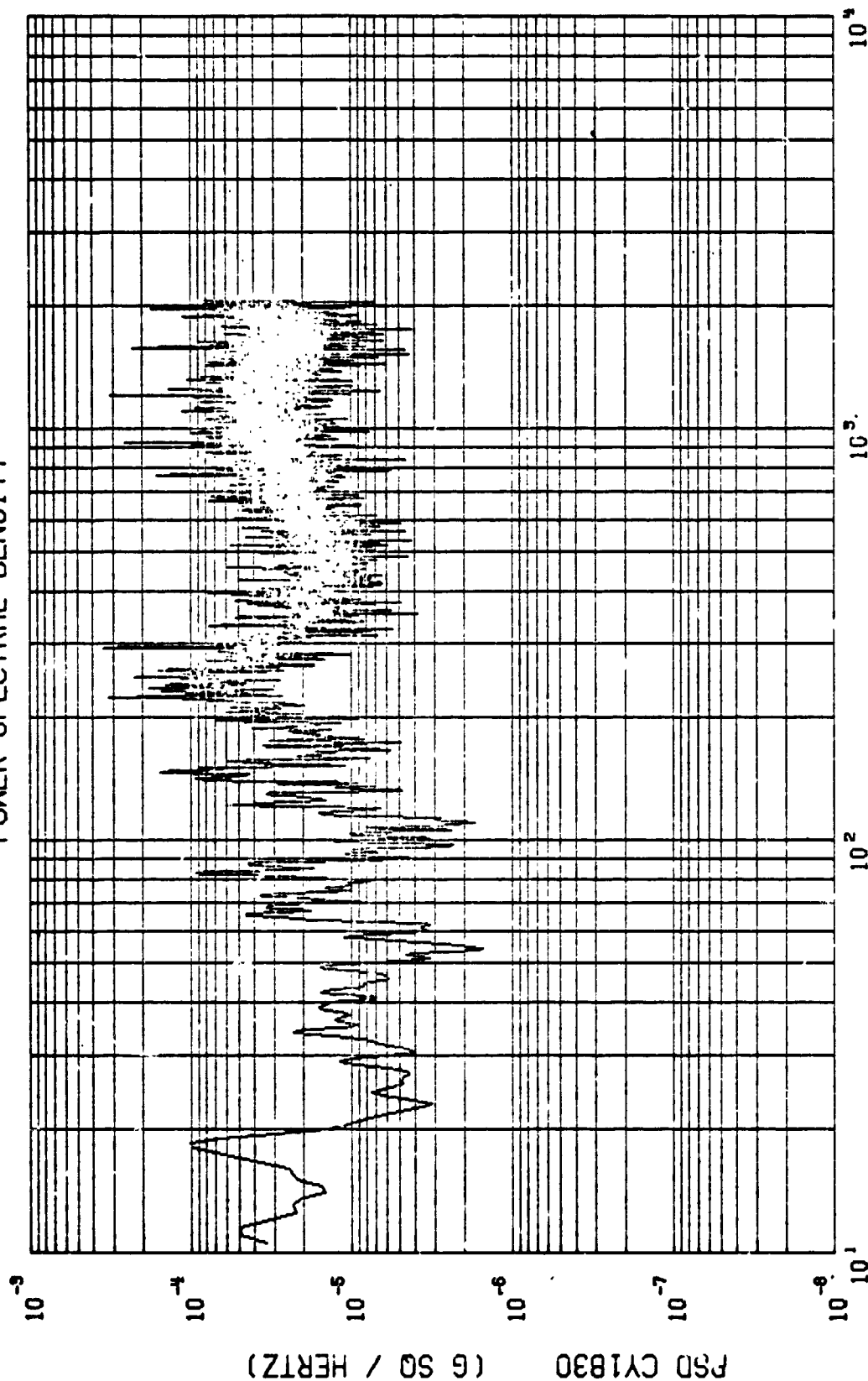
STAGE 0 IGN

CY1830

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.20a

POWER SPECTRAL DENSITY



$\Delta F = .499$

START = 76922.500 SEC

STOP = 76924.298 SEC

MEAN = -28312×10^{-5}

$\sigma = 69676 \times 10^{-5}$

$\sigma = 26396 \times 10^{-5}$

$3\sigma = 79189 \times 10^{-5}$

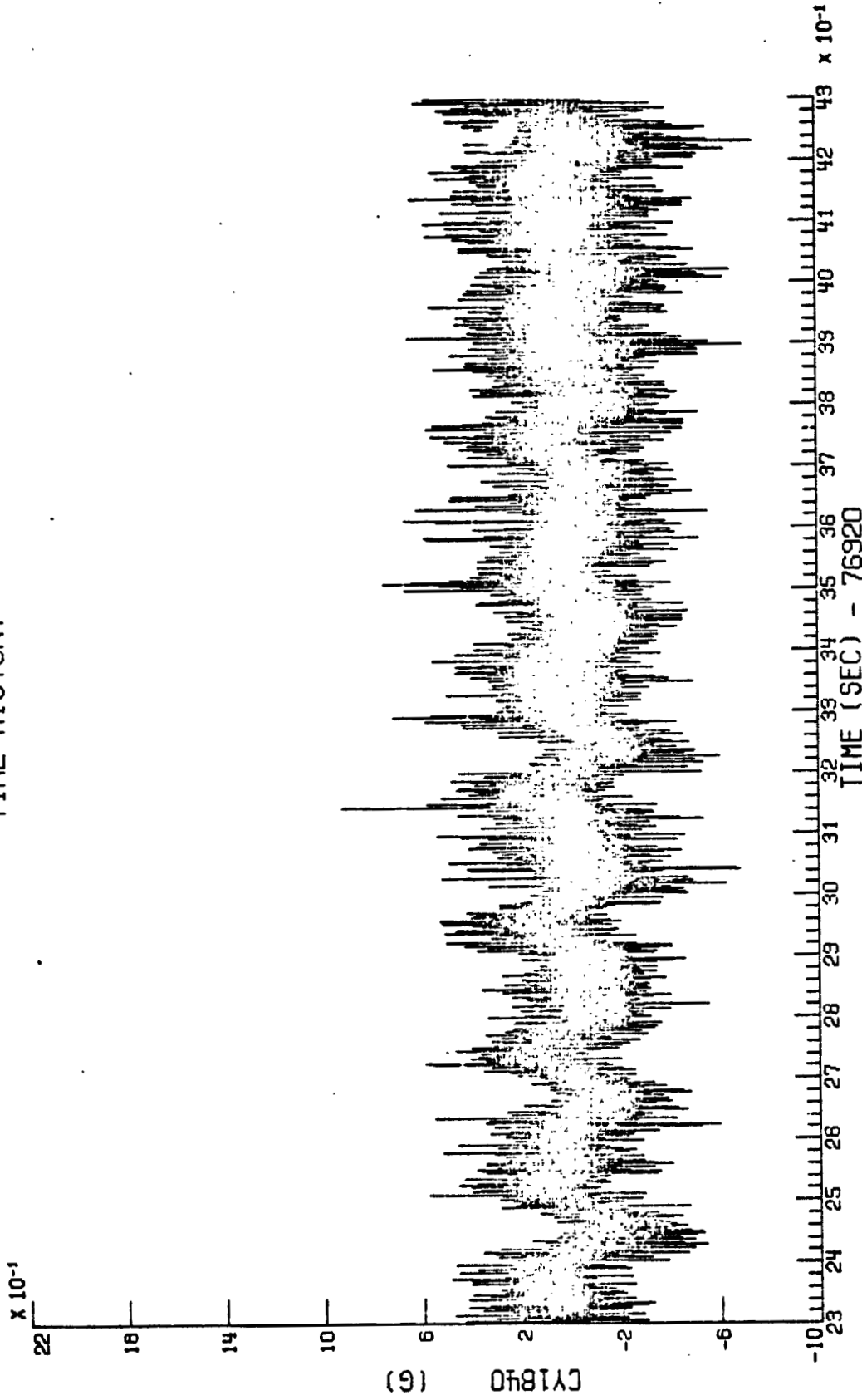
VIKING A FLT (CIF)

STAGE 0 IGN

CY1830

REPRODUCIBILITY OF THE
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TIME HISTORY



MAX = .922

MIN = -.750

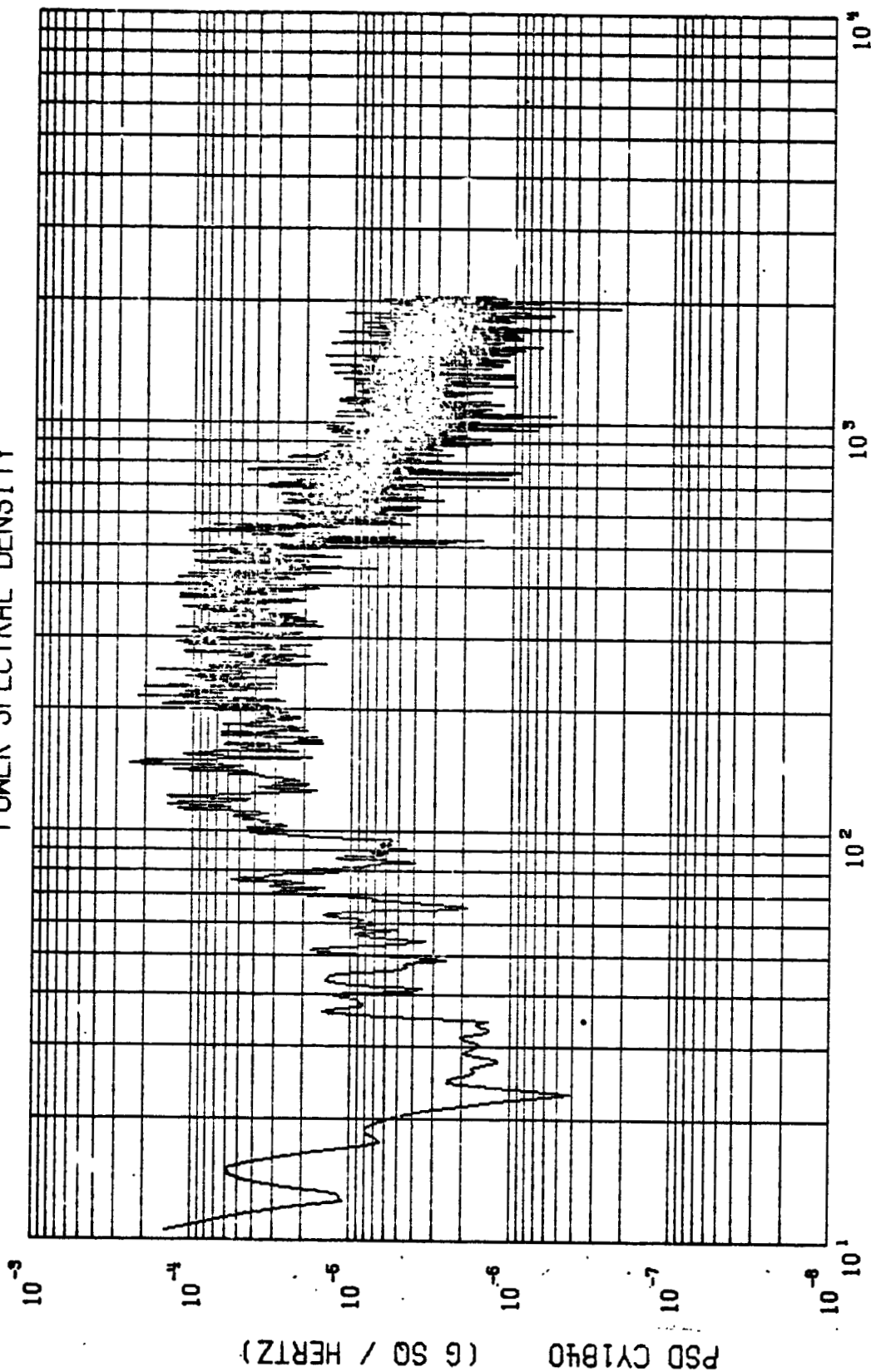
VIKING A FLT (CIF)

STAGE 0 IGN

CY1840

Figure 3.2la

POWER SPECTRAL DENSITY



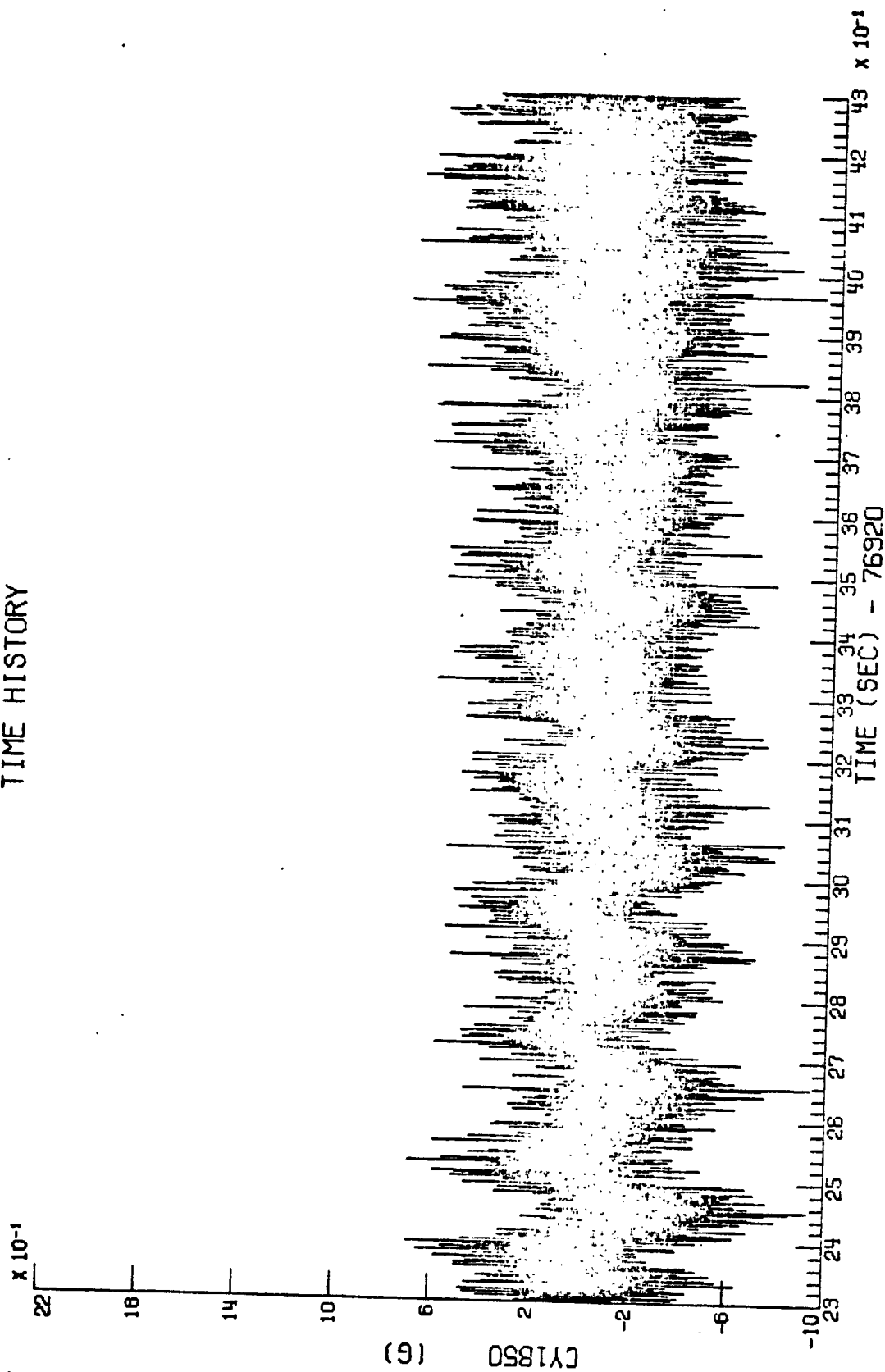
FREQUENCY (HERTZ)

$\Delta f = .499$
 $\text{MEAN} = -12158 \times 10^{-6}$
 $\sigma^2 = 39309 \times 10^{-6}$
 $\sigma = 19826 \times 10^{-3}$
 $3\sigma = 5948 \times 10^{-3}$

START = 76922.300 SEC STOP = 76924.298 SEC

VIKING A FLT (CIF) STAGE 0 IGN CY1840

TIME HISTORY



MAX = .739

MIN = -.939

VIKING A FLT (CIF)

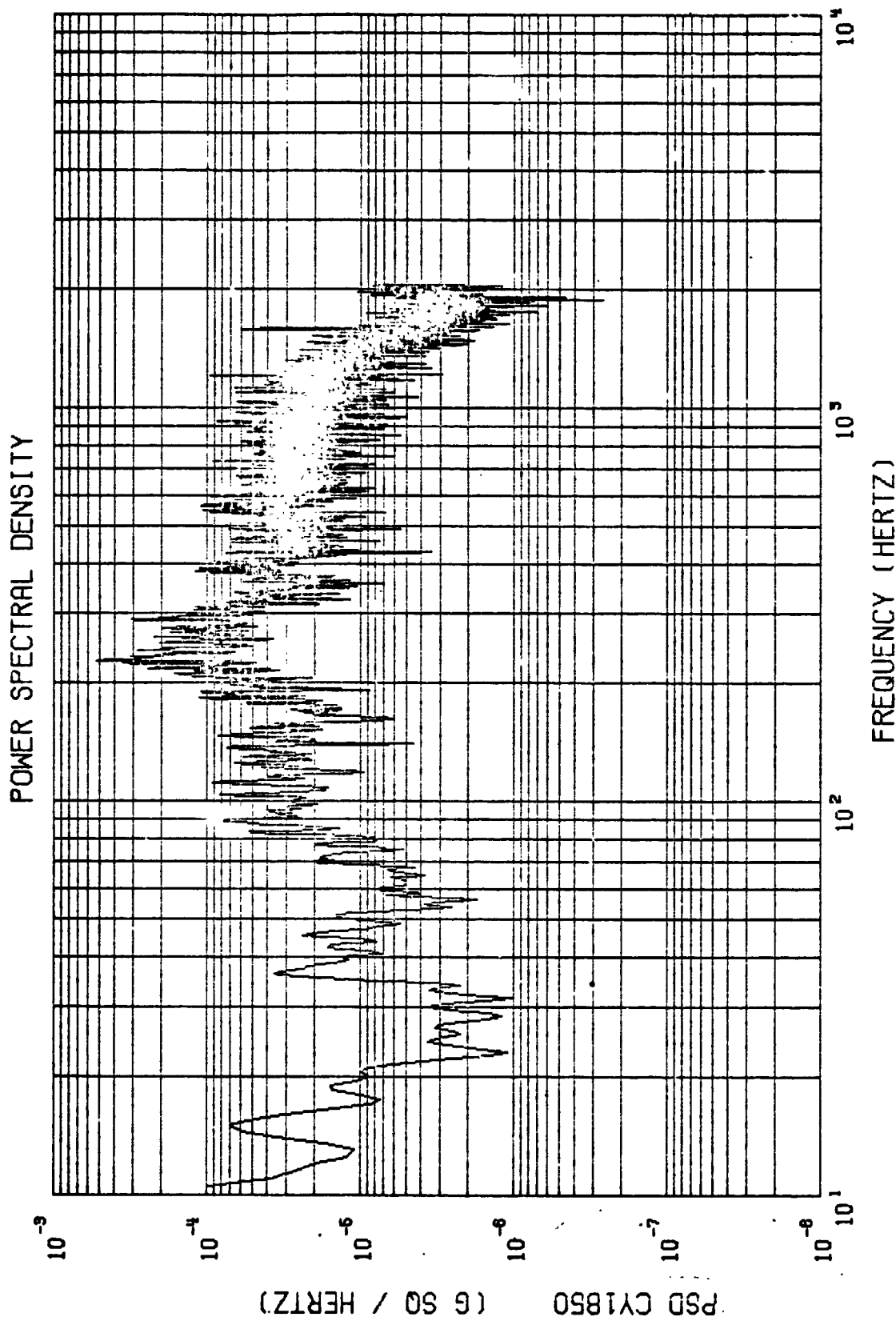
STAGE 0 IGN

CY1850

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.22a

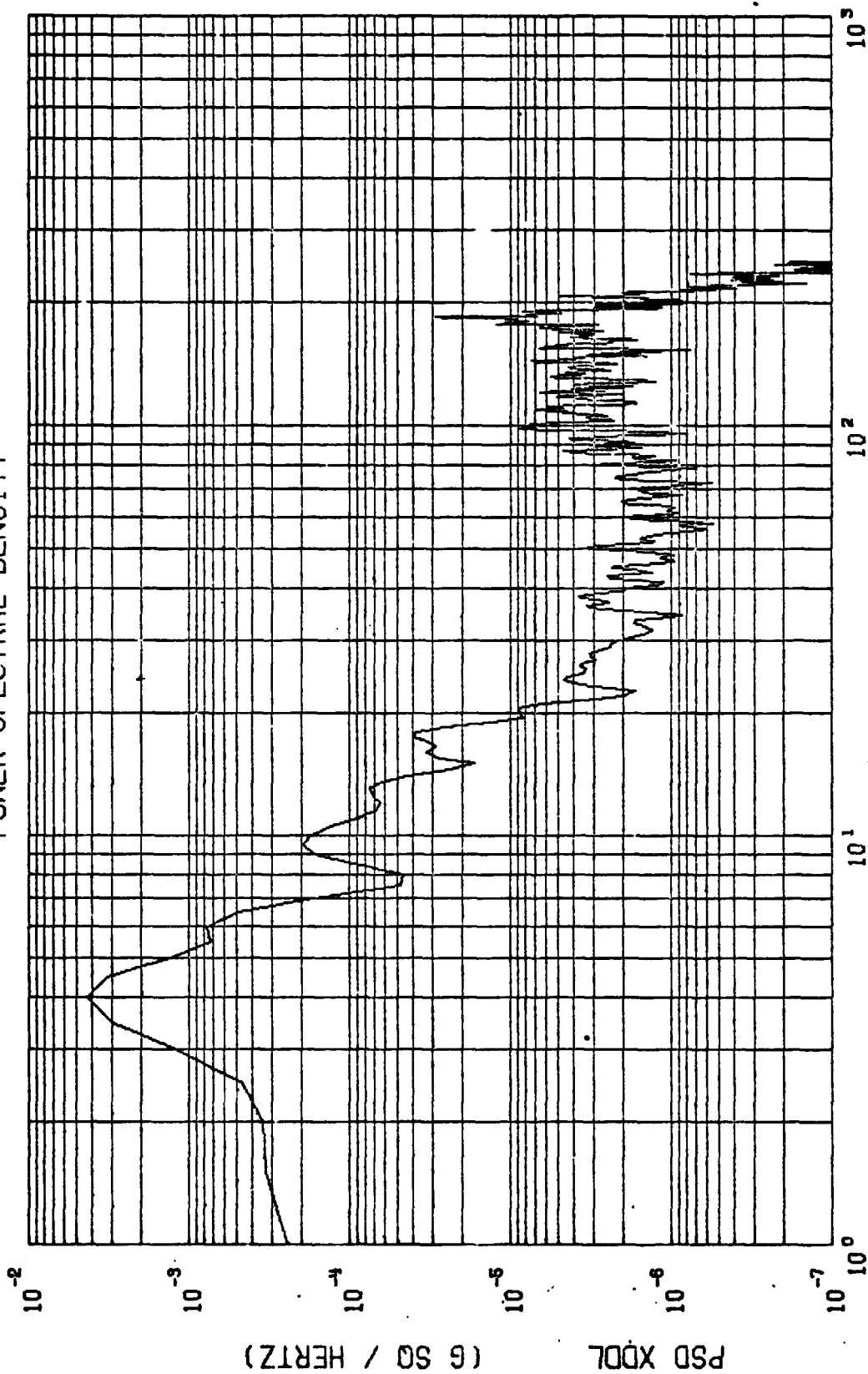
REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR



$\Delta F = .499$ START = 76922.900 SEC STOP = 76924.298 SEC
 MEAN = -81802×10^{-5} $\sigma^2 = 5656 \times 10^{-5}$ $\sigma = 23782 \times 10^{-5}$ $3\sigma = 71347 \times 10^{-5}$

VIKING A FLT (CIF) STAGE 0 IGN CY1850

POWER SPECTRAL DENSITY



$\Delta F = .500$
 $MEAN = -28457 \times 10^{-4}$
 $\sigma^2 = 98559 \times 10^{-7}$
 $\sigma = 99277 \times 10^{-4}$
 $3\sigma = 29783 \times 10^{-4}$

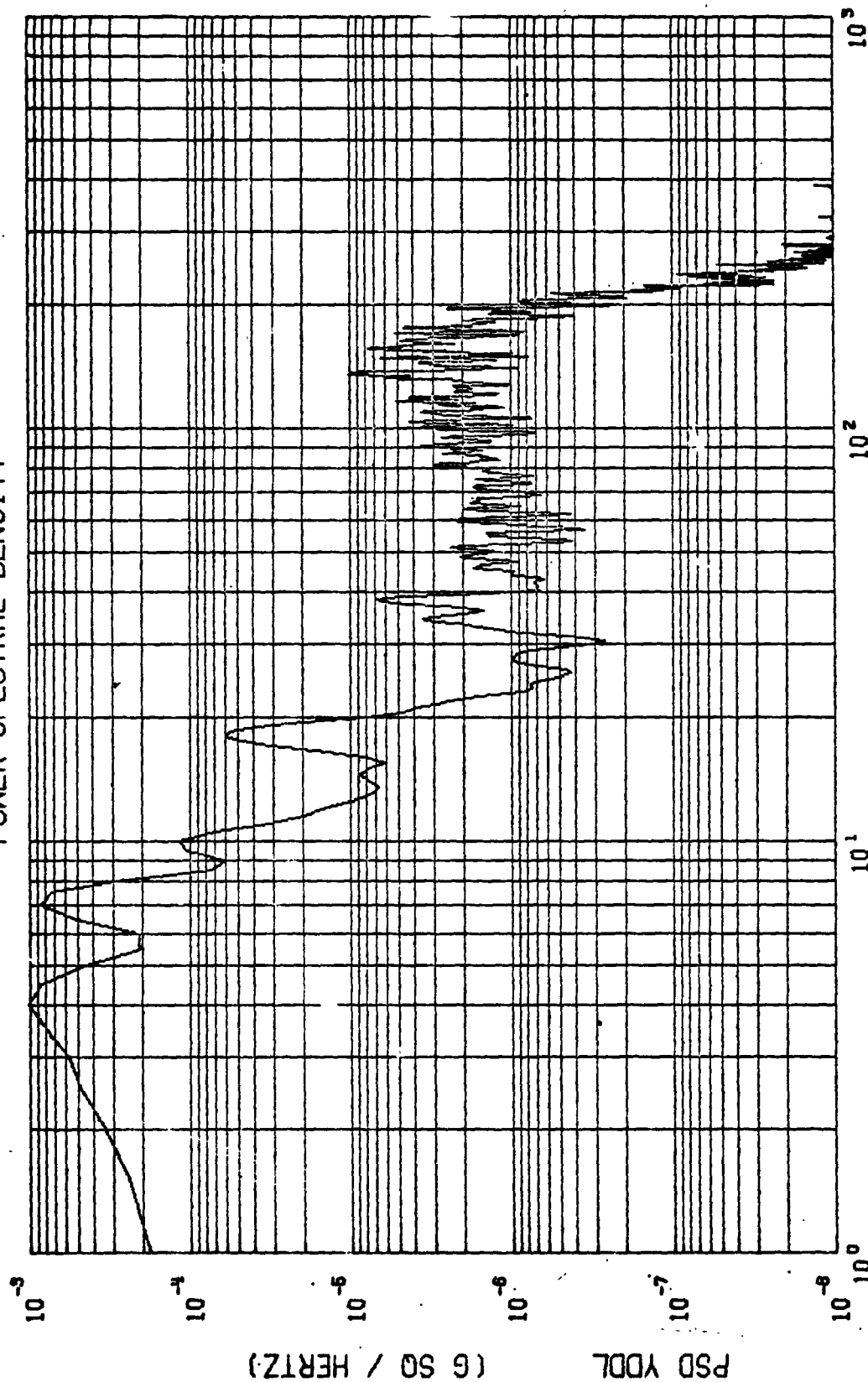
$START = 76922.900 \text{ SEC}$
 $STOP = 76924.297 \text{ SEC}$

VIKING A FLT (CIF)

STAGE 0 IGN

XDDL

POWER SPECTRAL DENSITY



$\Delta F = .500$ START = 76922.300 SEC STOP = 76924.297 SEC
 MEAN = 24354×10^{-6} $\sigma^2 = 47464 \times 10^{-7}$ $\sigma = 68894 \times 10^{-4}$ $3\sigma = 20668 \times 10^{-4}$

YDDL

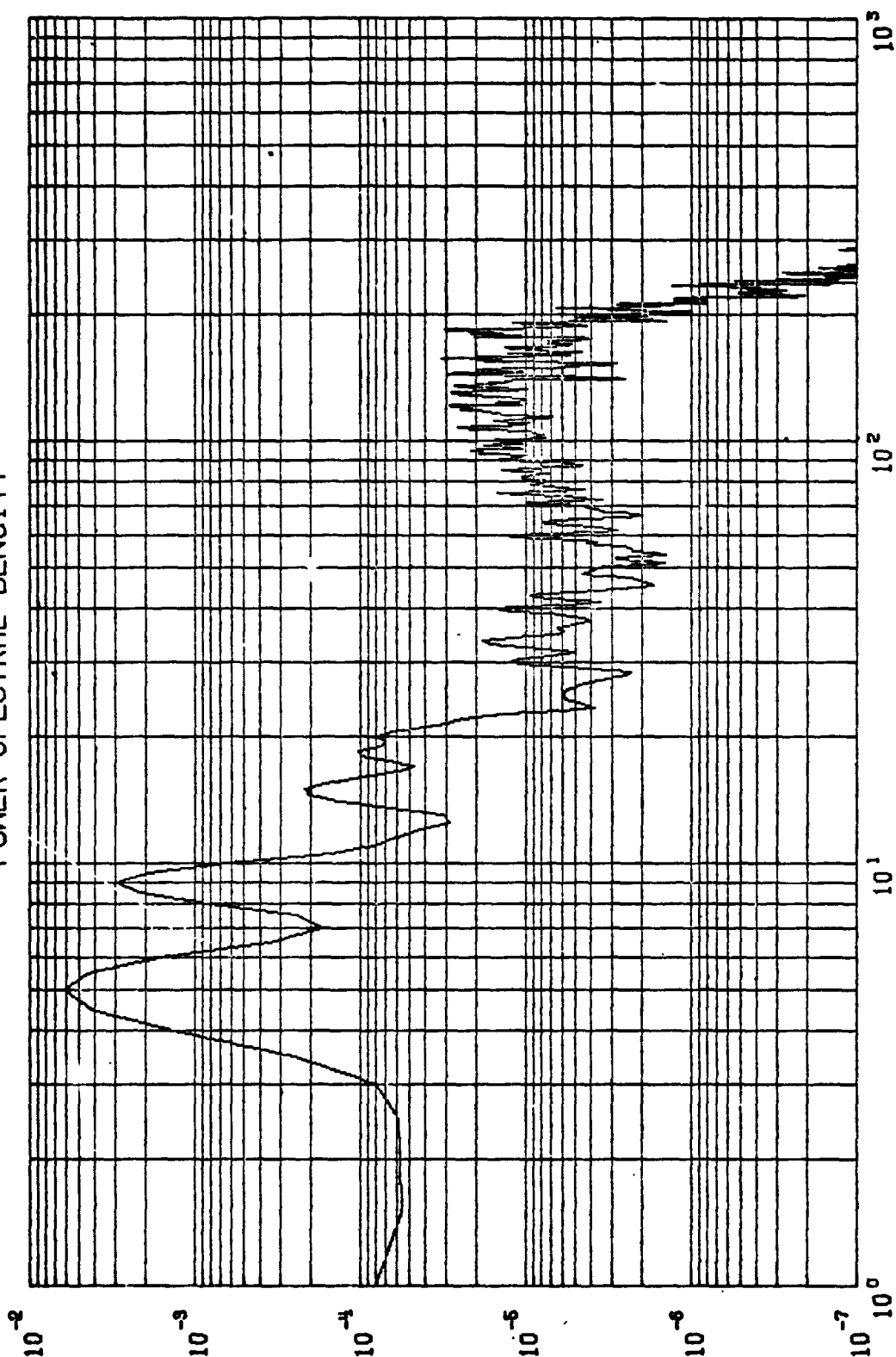
STAGE 0 IGN

VIKING A FLT (CIF)

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM, 08/21/75

Figure 3.24

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .500$ START = 76922.300 SEC STOP = 76924.297 SEC
 MEAN = 17063×10^{-6} $\sigma^2 = 16865 \times 10^{-6}$ $\sigma = 12986 \times 10^{-3}$ $3\sigma = 3896 \times 10^{-4}$

VIKING A FLT (CIF)

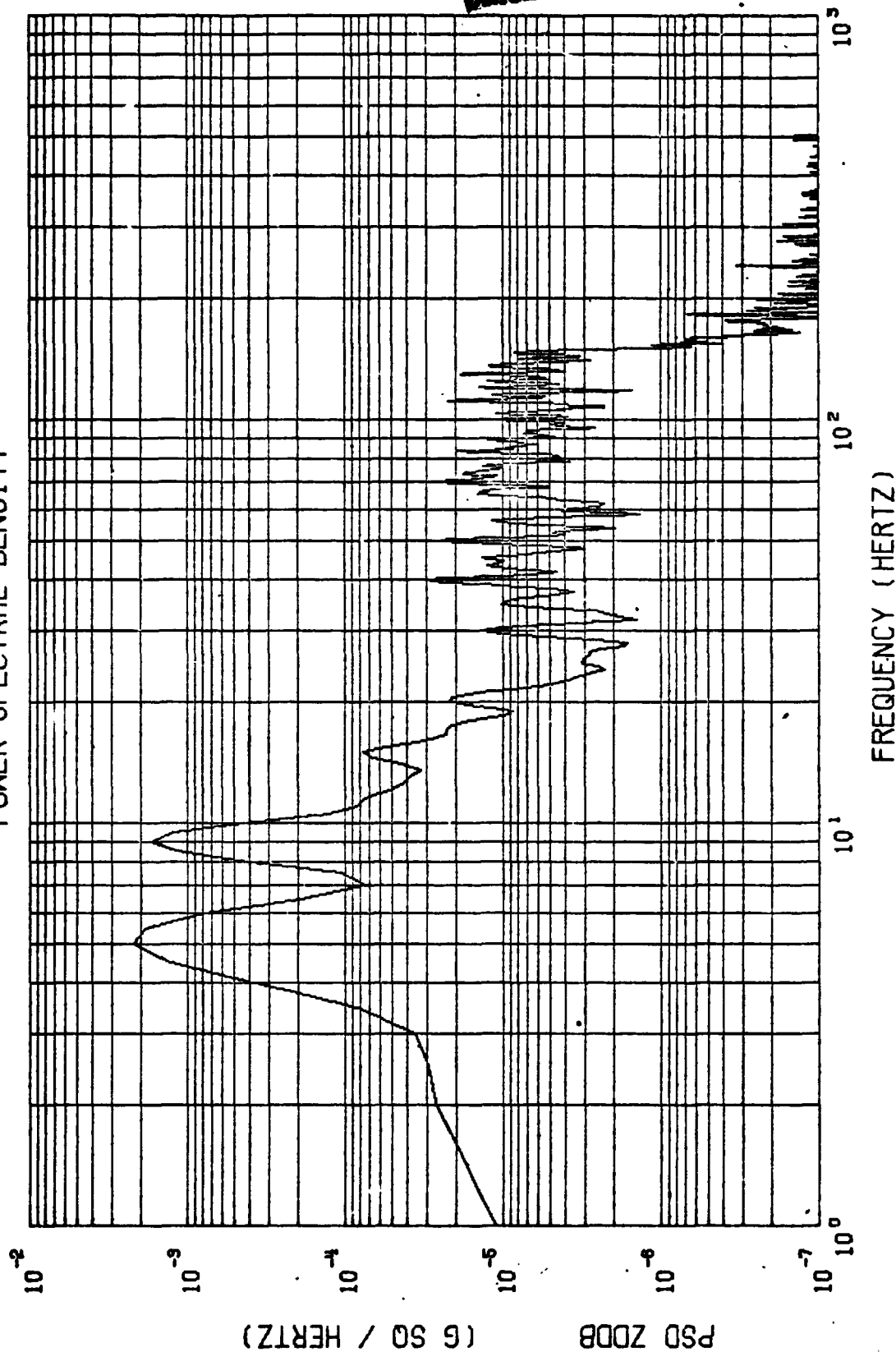
STAGE 0 IGN

ZDDL

Figure 3.25

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

POWER SPECTRAL DENSITY



$\Delta F = .500$ START = 76922.300 SEC STOP = 76924.297 SEC
 MEAN = -58651×10^{-3} $\sigma^2 = 74831 \times 10^{-7}$ $\sigma = 86505 \times 10^{-4}$ $3\sigma = 25951 \times 10^{-3}$

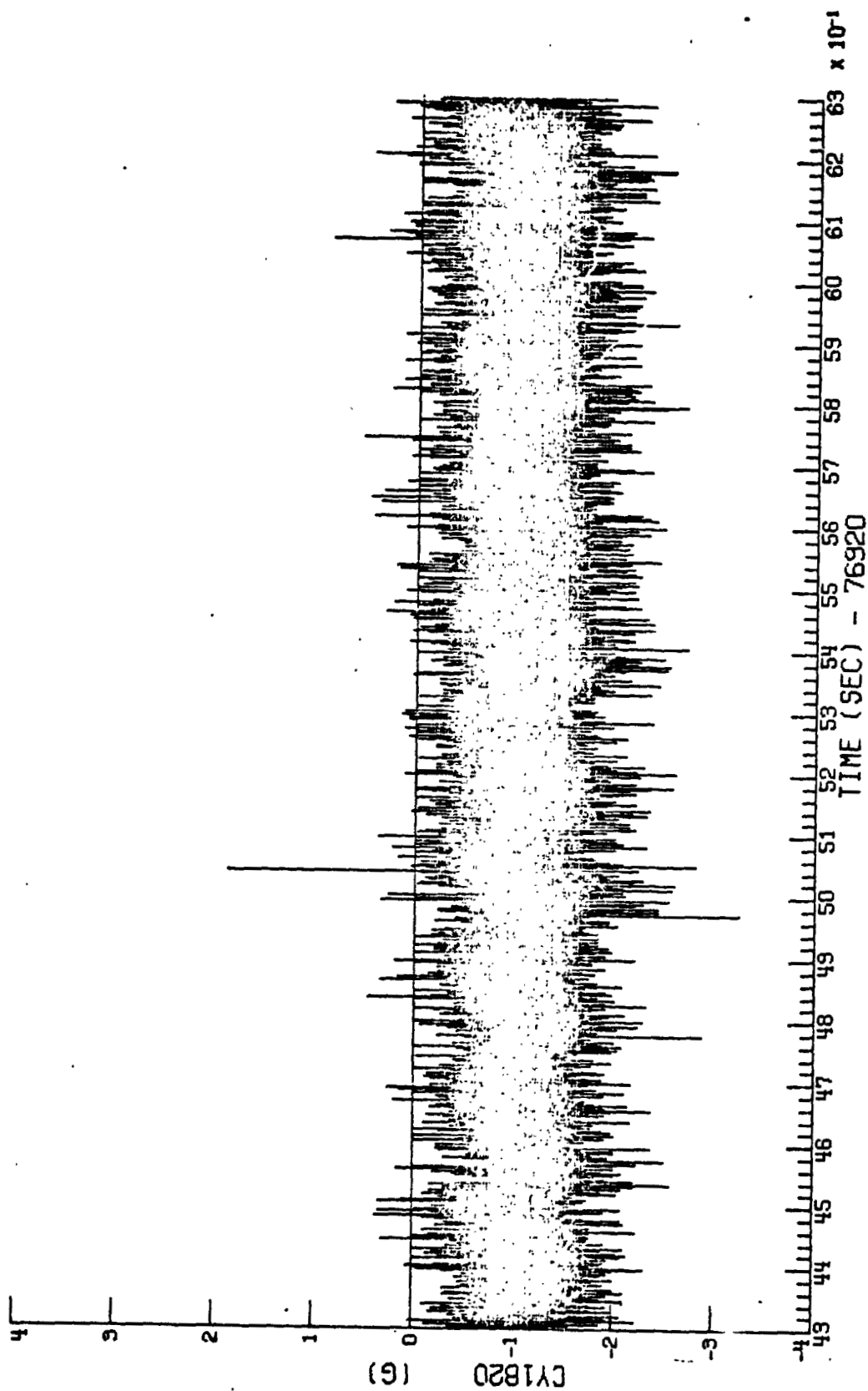
VIKING A FLT (CIF)

STAGE 0 IGN

ZODB

Figure 3.26

TIME HISTORY



MAX = 1.870

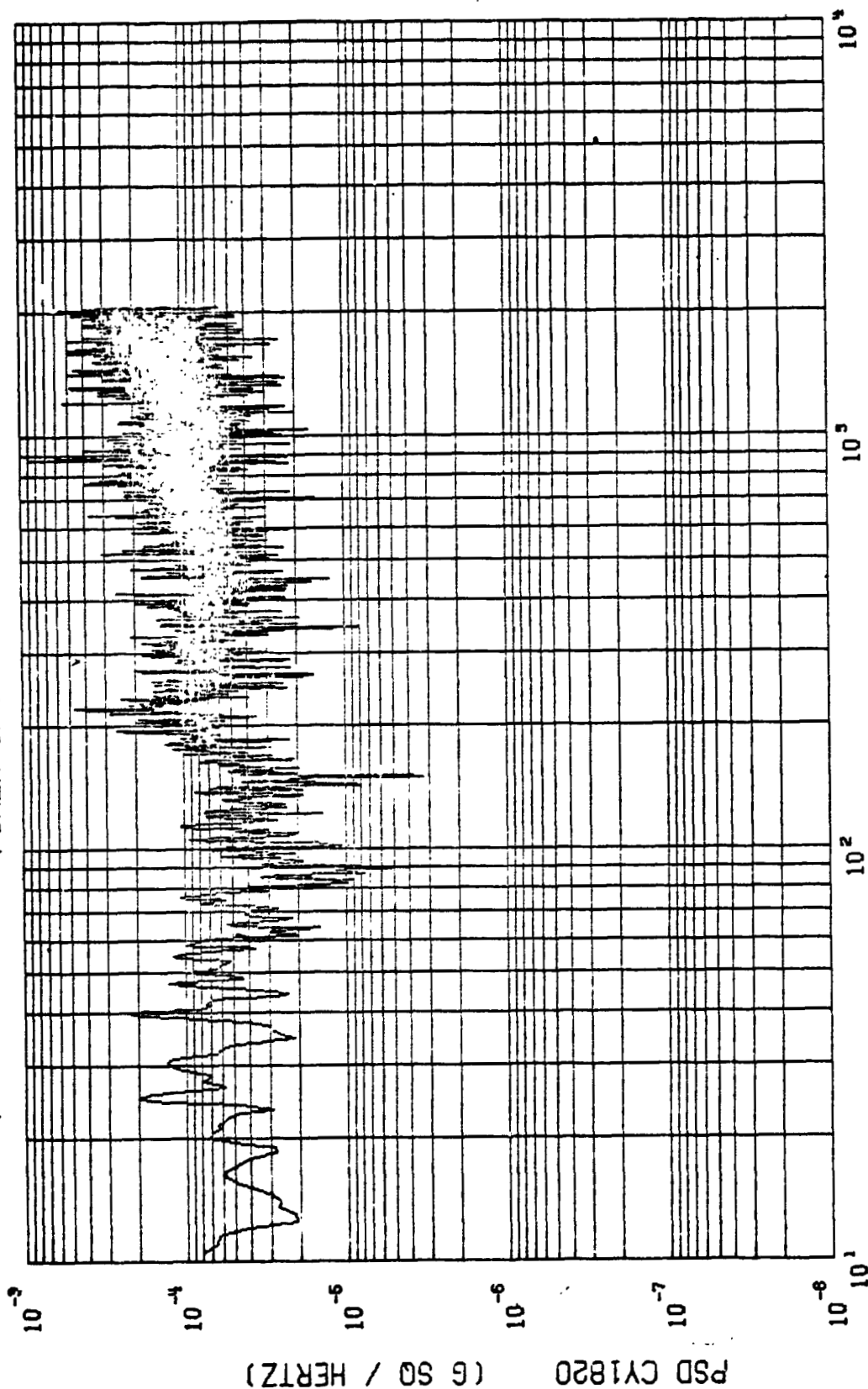
MIN = -3.239

VIKING A FLT (CIF)

STAGE 0 IGN

CY1820

POWER SPECTRAL DENSITY

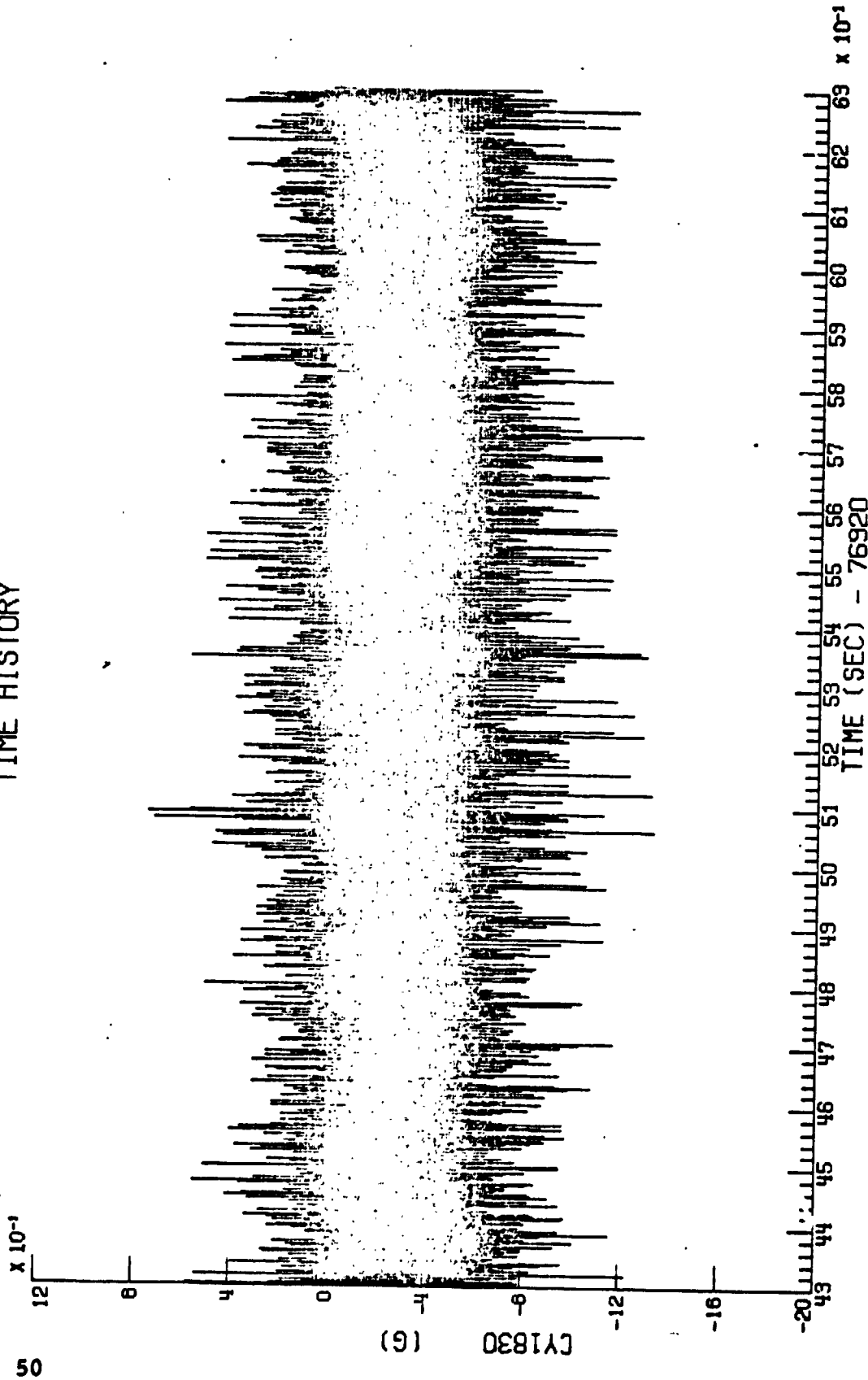


FREQUENCY (HERTZ)

$\Delta F = .499$ START = 76924.300 SEC STOP = 76926.299 SEC
 MEAN = -10836×10^{-4} $\sigma^2 = 24606 \times 10^{-5}$ $\sigma = 49604 \times 10^{-3}$ $3\sigma = 14881 \times 10^{-3}$

VIKING A FLT (CIF) STAGE 0 IGN CY1820
 Figure 3.27b

TIME HISTORY



MAX = .745

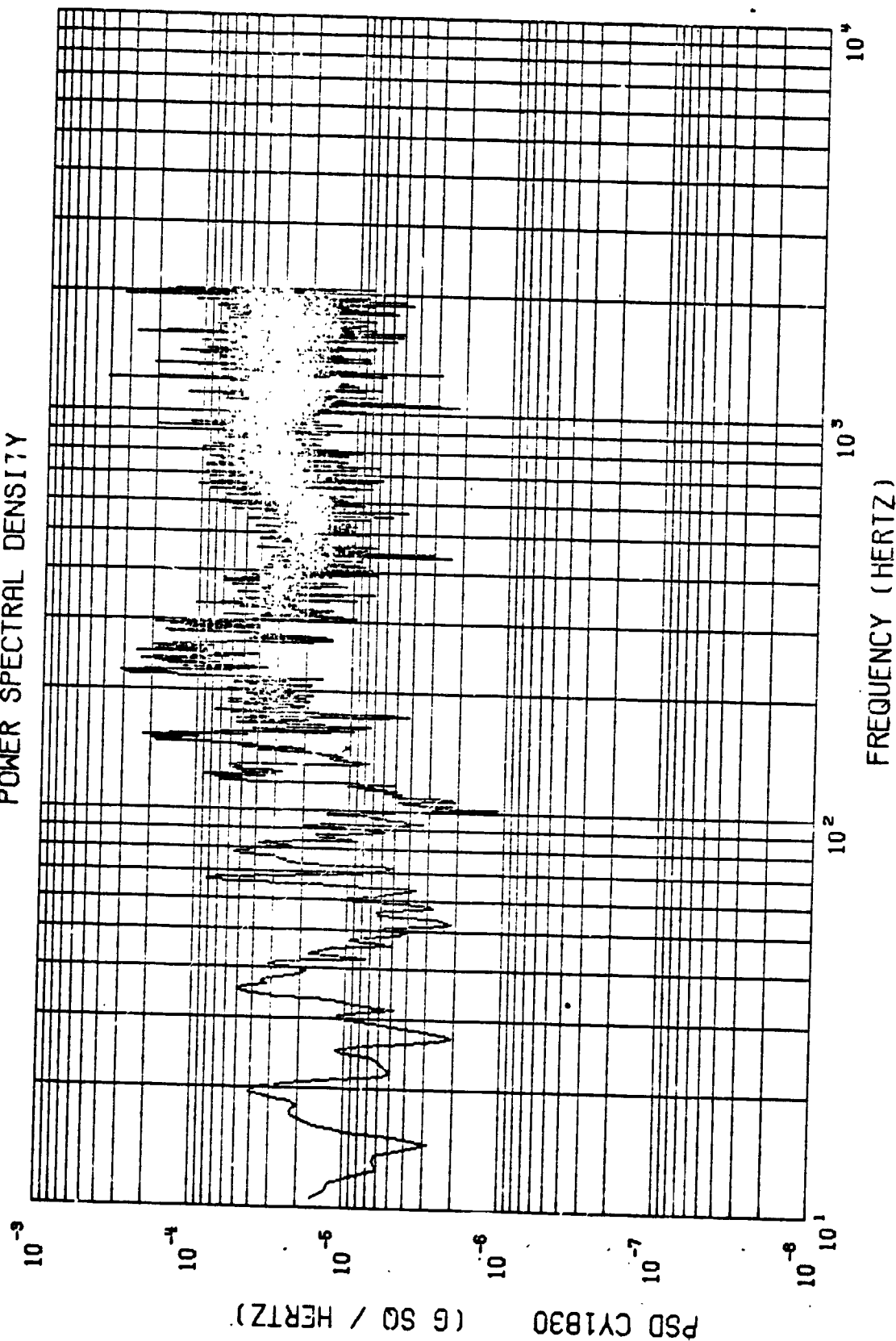
MIN = -1.331

VIKING A FLT (CIF)

STAGE 0 IGN

CY1830

POWER SPECTRAL DENSITY



$\Delta F = .499$

START = 76924.300 SEC

STOP = 76926.299 SEC

MEAN = -28381×10^{-5}

$\sigma^2 = 76844 \times 10^{-5}$

$\sigma = 2772 \times 10^{-5}$

$3\sigma = 83162 \times 10^{-5}$

VIKING A FLT (CIF)

STAGE 0 IGN

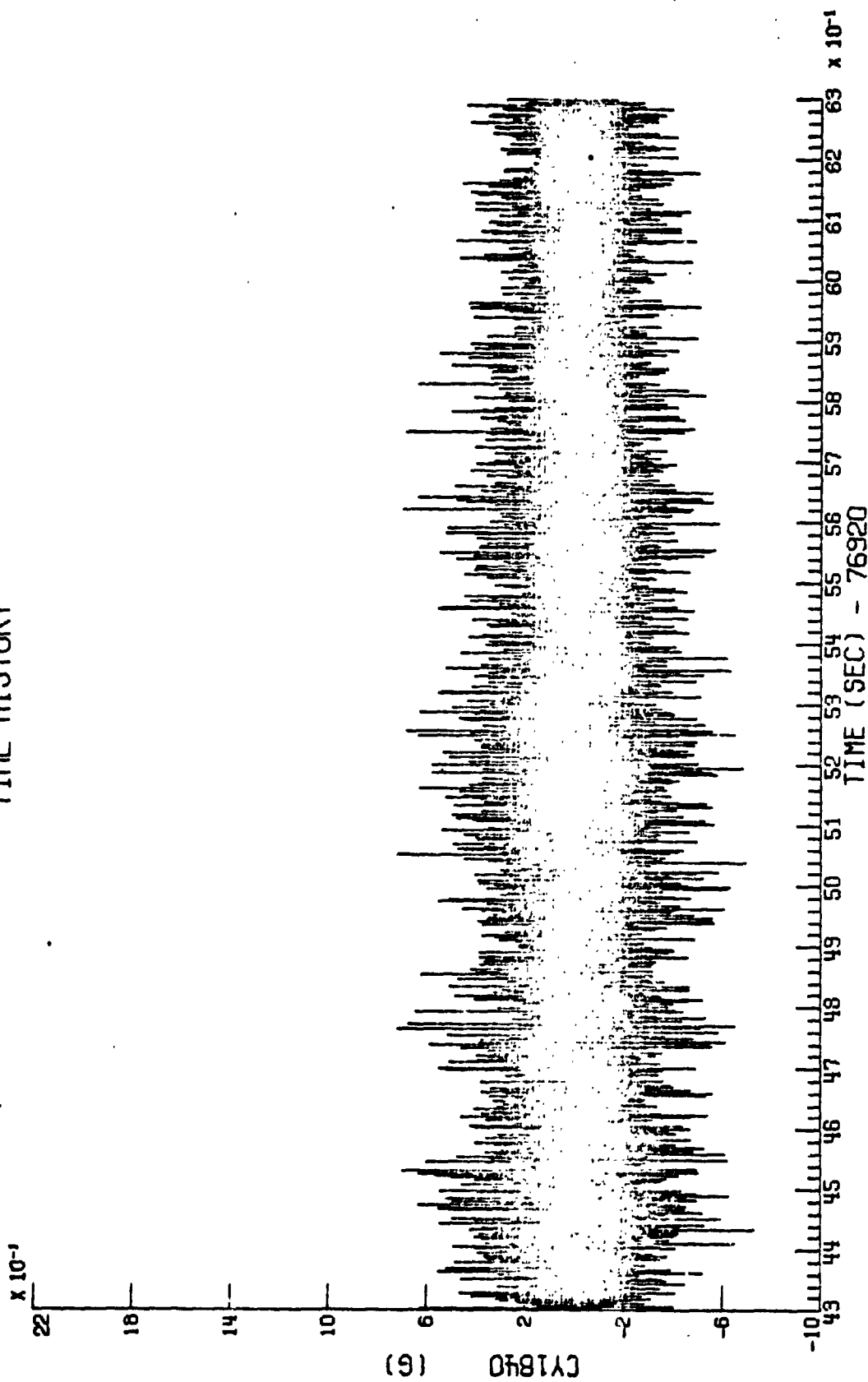
CY1830

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.28b

ORIGINAL PAGE 13
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TIME HISTORY



MAX = .717

MIN = -.728

VIKING A FLT (CIF)

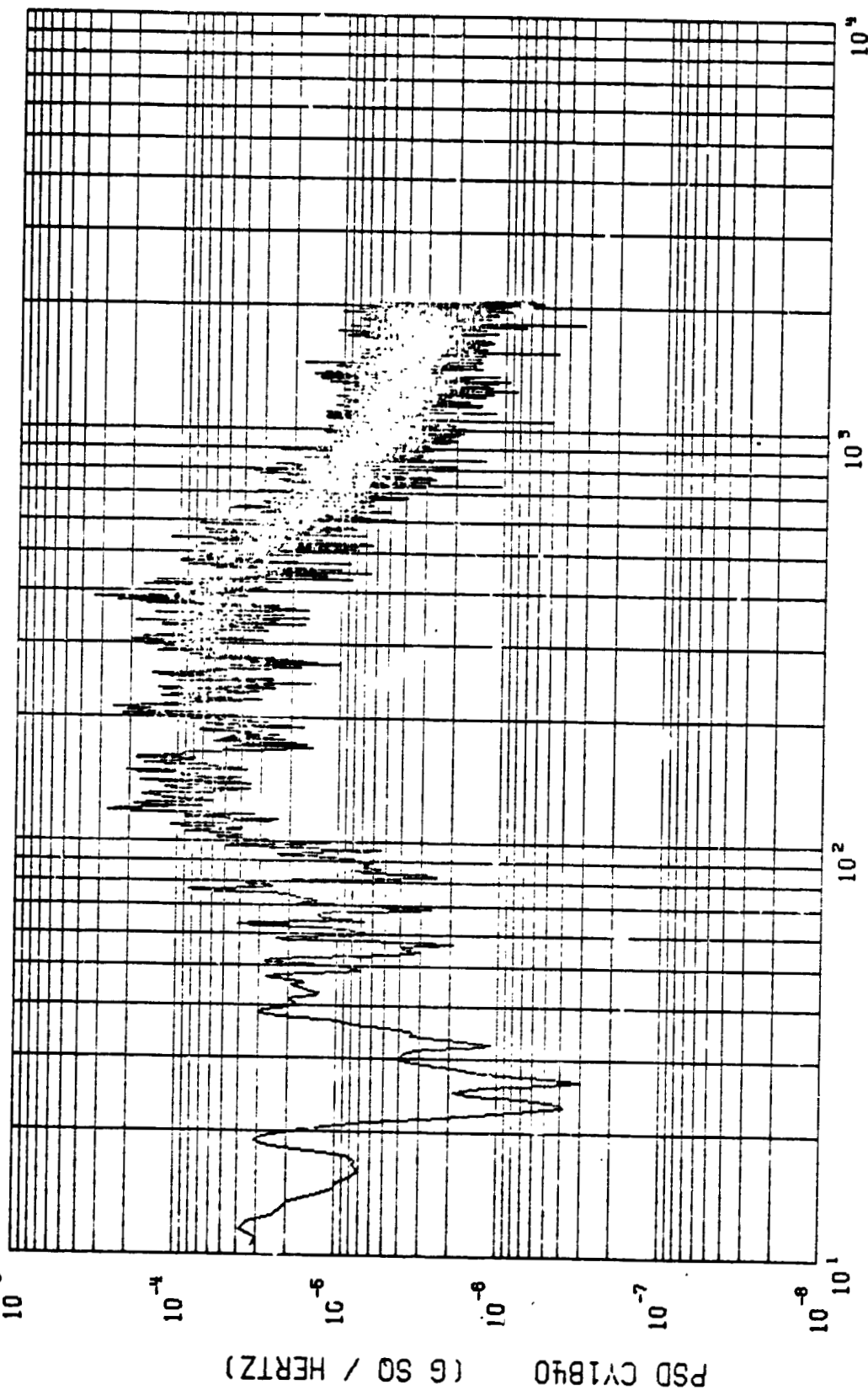
STAGE 0 IGN

CY1840

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.29a

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .499$
 $MEAN = -.15736 \times 10^{-8}$
 $\sigma^2 = 41439 \times 10^{-8}$
 $\sigma = 20556 \times 10^{-8}$
 $3\sigma = 61063 \times 10^{-8}$

START = 76324.300 SEC

STOP = 76326.293 SEC

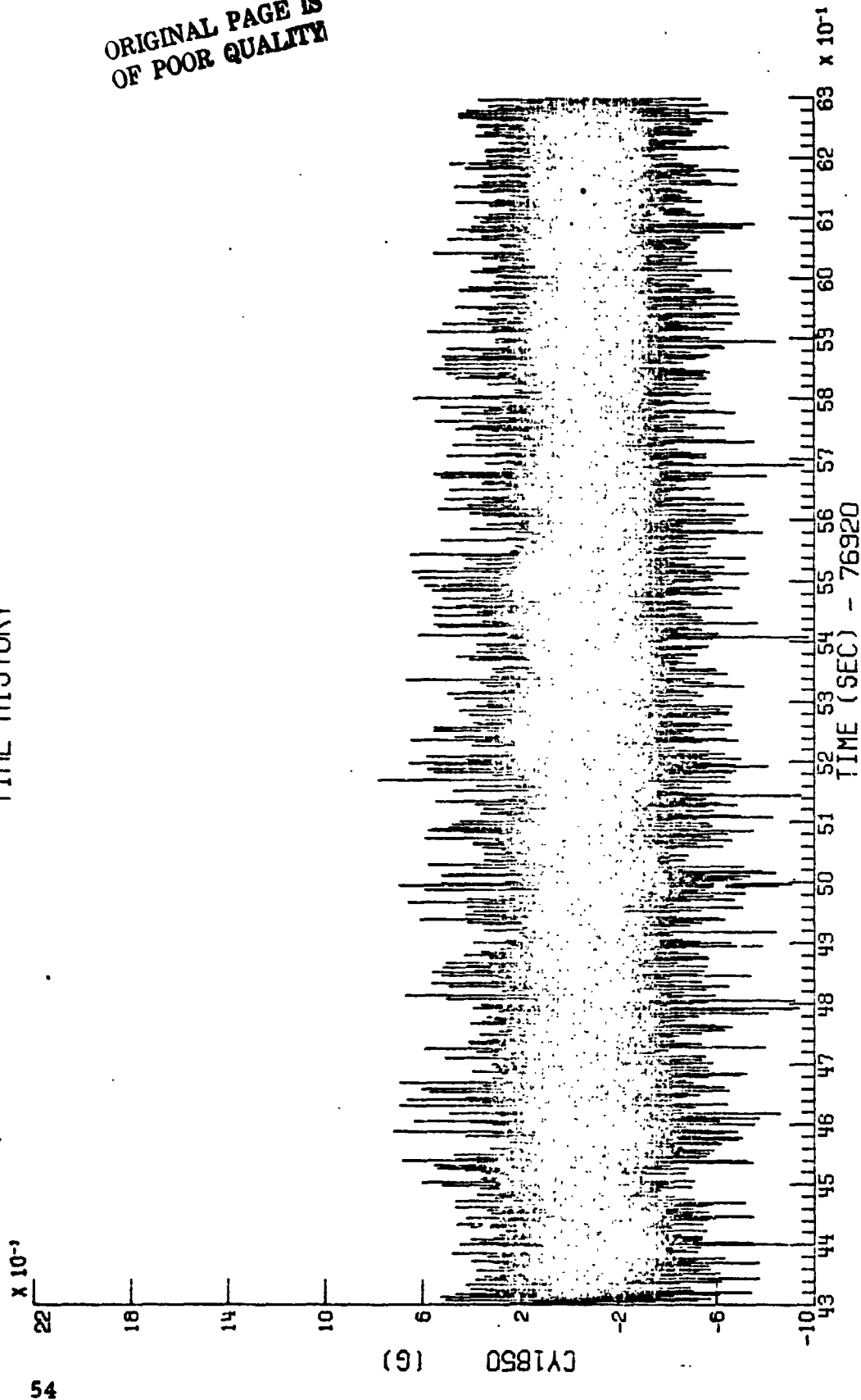
VIKING A FLT (CIF)

STAGE 0 IGN

CY1840

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TIME HISTORY



MAX = .778

MIN = -.972

VIKING A FLT (CIF)

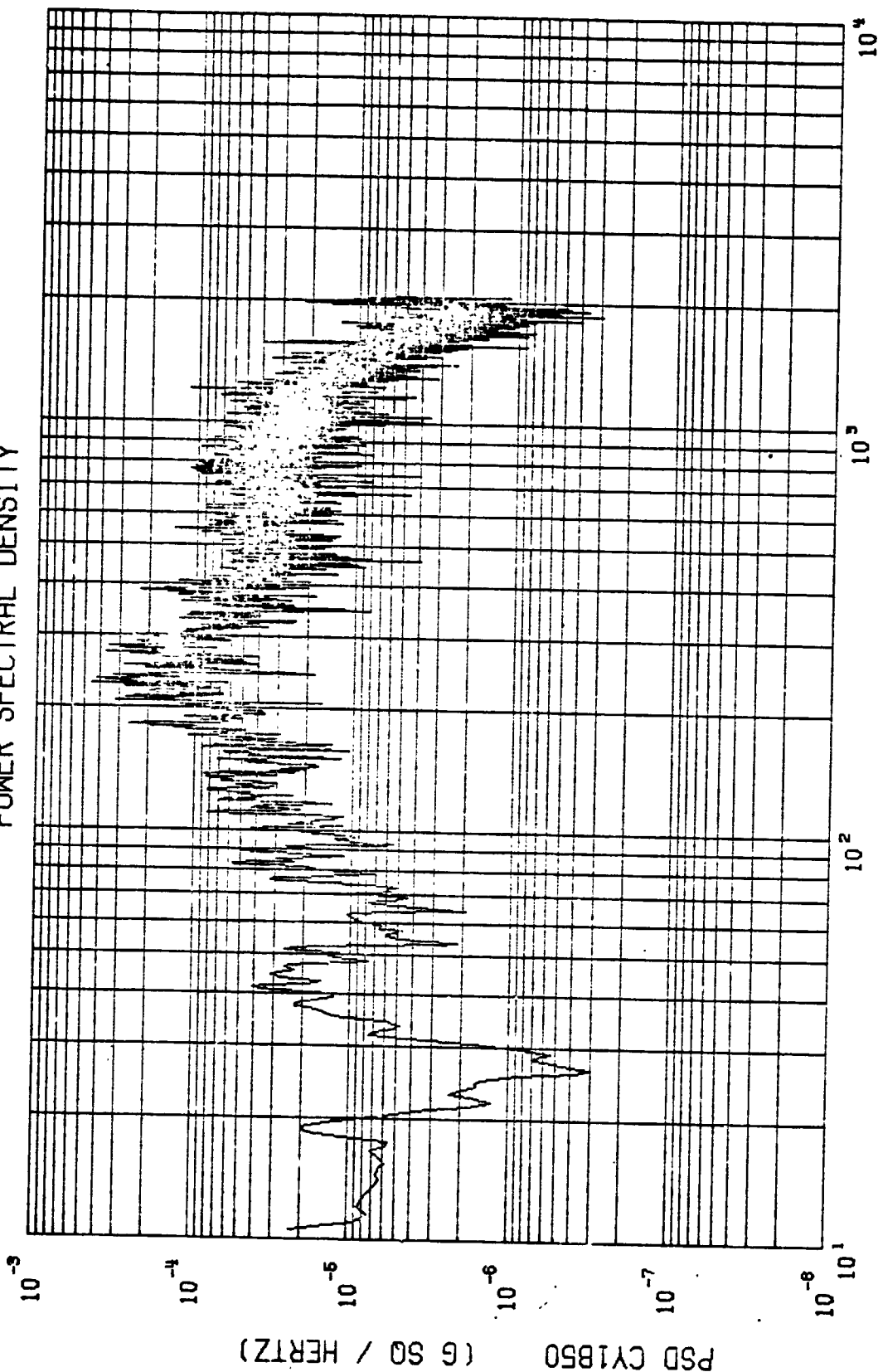
STAGE 0 IGN

CY1850

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.30a

POWER SPECTRAL DENSITY



$\Delta F = .499$

START = 76924.900 SEC

STOP = 76926.239 SEC

MEAN = -87499×10^{-6}

$\sigma = 6244 \times 10^{-6}$

$3\sigma = 74964 \times 10^{-6}$

VIKING A FLT (CIF)

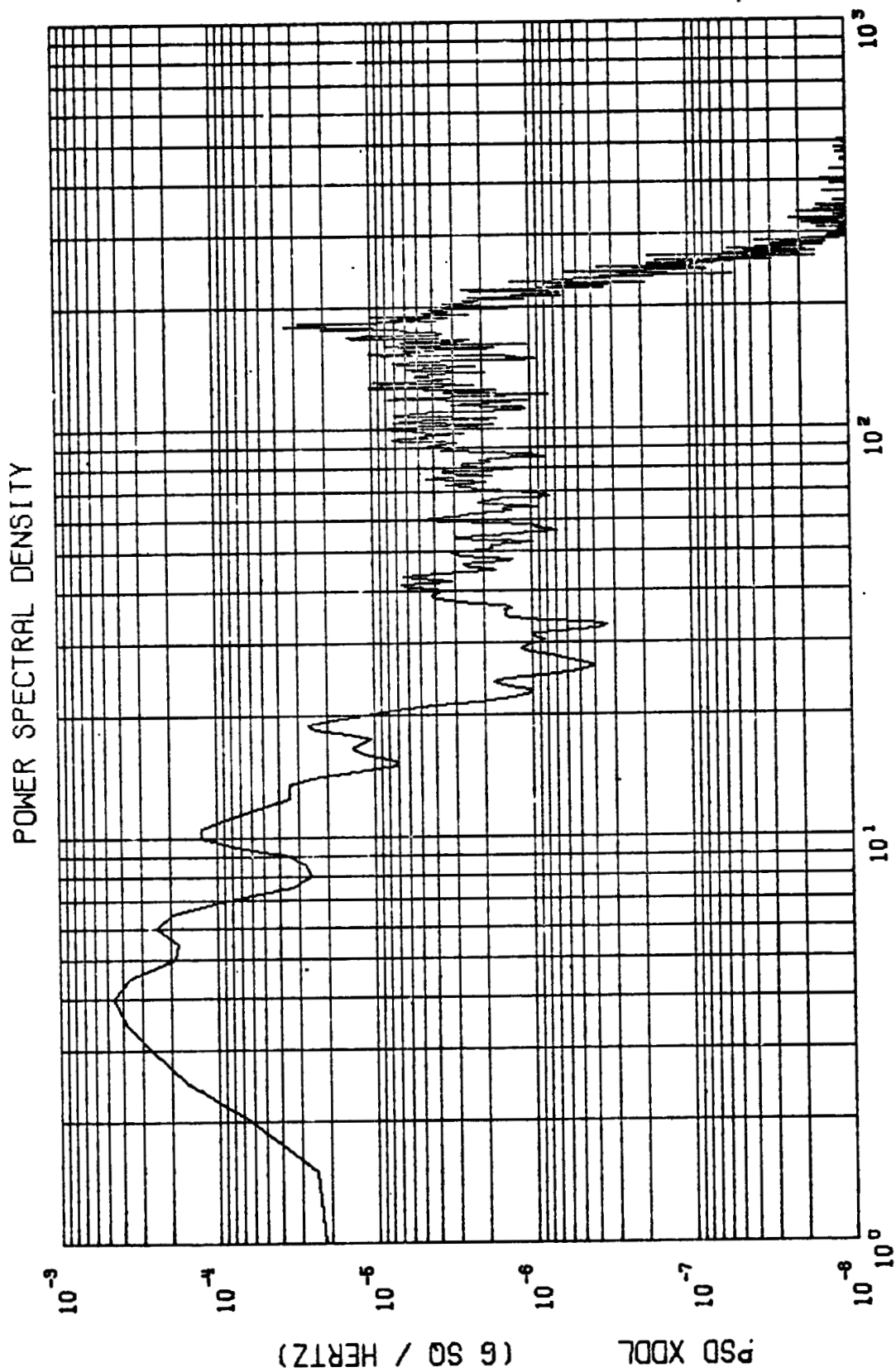
STAGE 0 IGN

CY1850

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.30b

REPRODUCIBILITY OF THE
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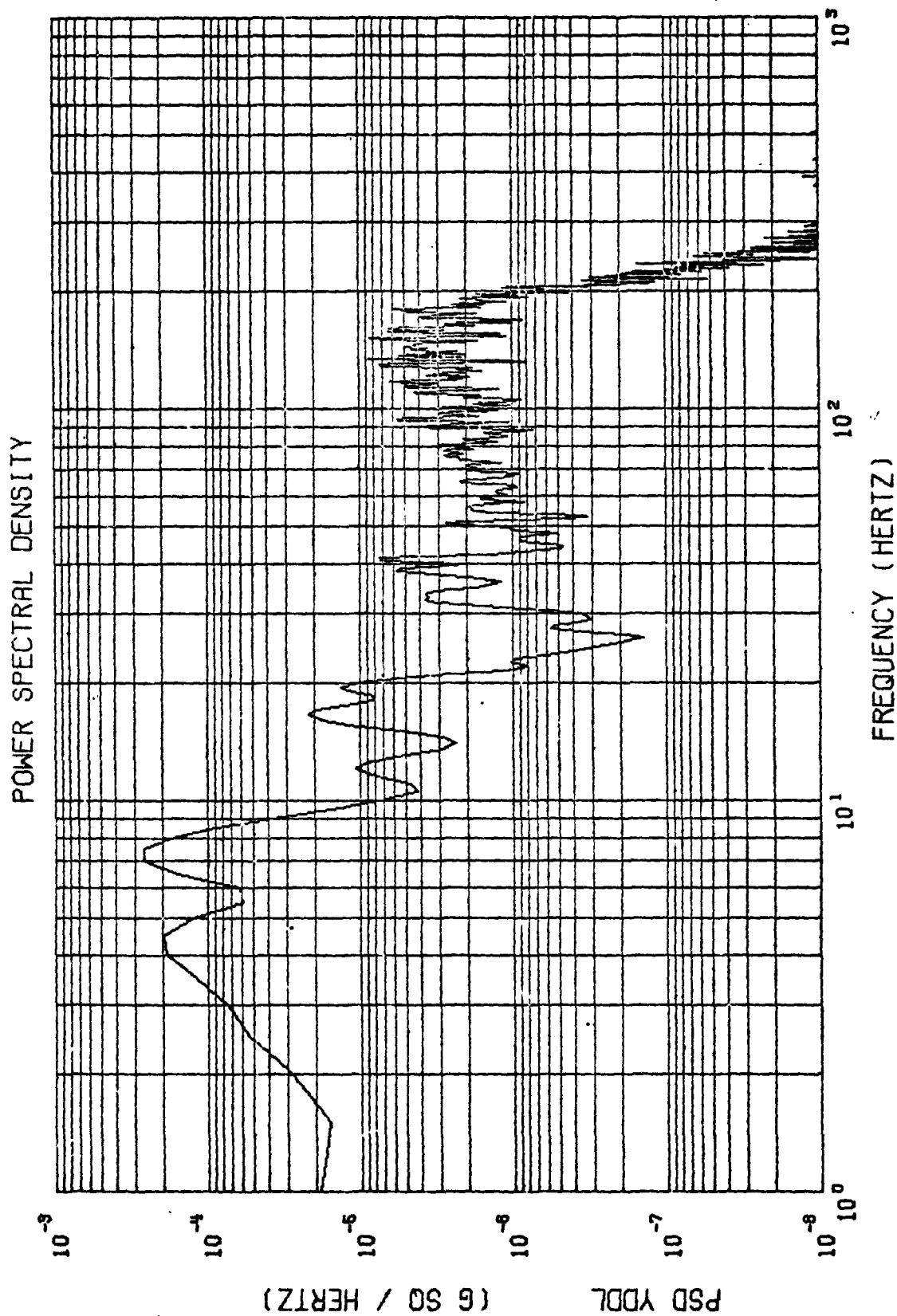
$\Delta F = .500$ START = 76924.300 SEC STOP = 76928.298 SEC
 MEAN = -28283×10^{-8} $\sigma^2 = 26042 \times 10^{-7}$ $\sigma = 51032 \times 10^{-4}$ $3\sigma = 15309 \times 10^{-4}$

XDDL

STAGE 0 IGN

VIKING A FLT (CIF)

Figure 3.31

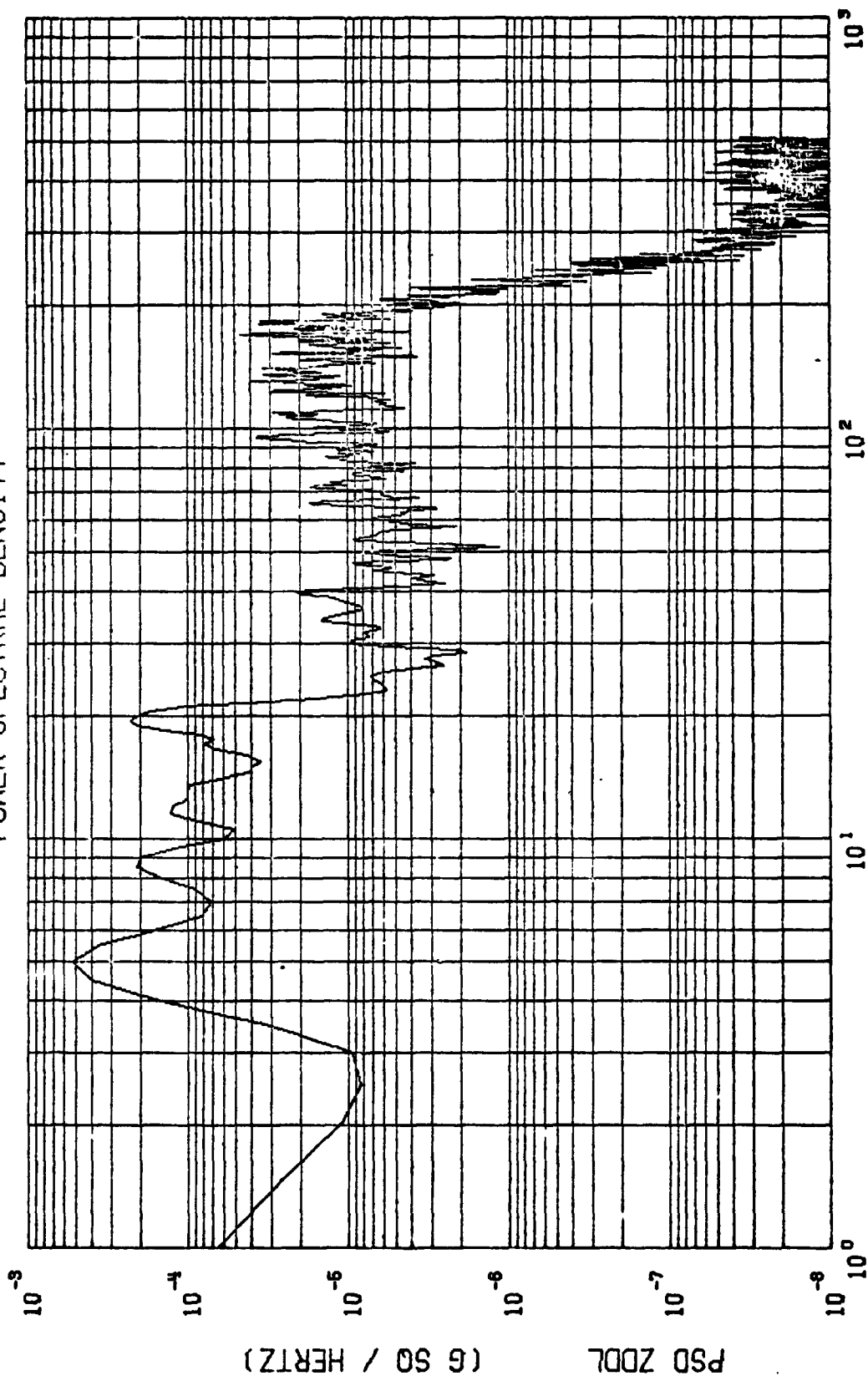


$\Delta F = .500$
 START = 76924.300 SEC STOP = 76926.298 SEC
 MEAN = 21224×10^{-5} $\sigma^2 = 15361 \times 10^{-7}$ $\sigma = 3918 \times 10^{-5}$ $3\sigma = 11754 \times 10^{-5}$

VIKING A FLT (CIF) YDDL STAGE 0 IGN

Figure 3.32

POWER SPECTRAL DENSITY



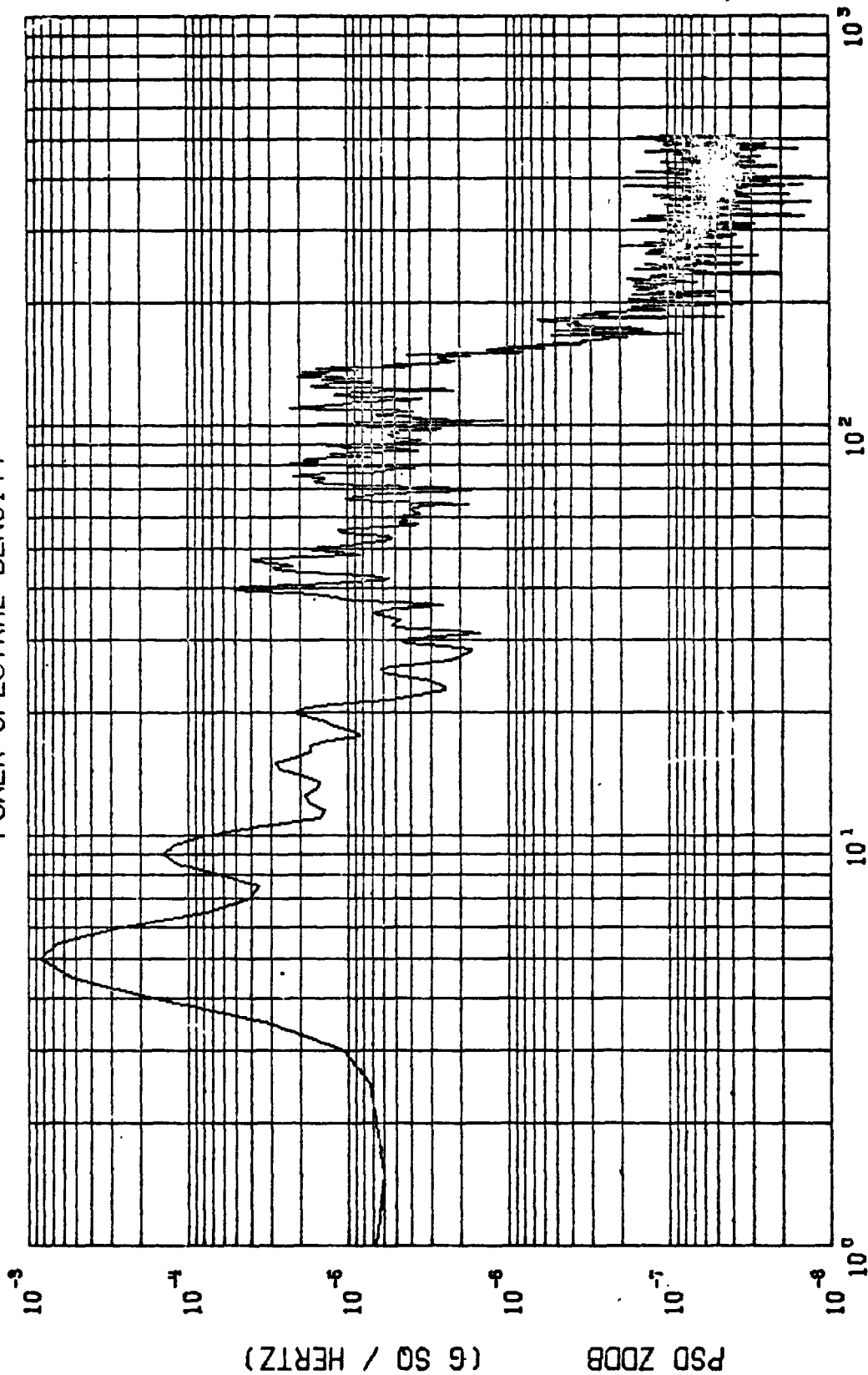
FREQUENCY (HERTZ)

$\Delta F = .500$ STAR = 76924.300 SEC STOP = 76926.298 SEC
 MEAN = 1755×10^{-3} $\sigma^2 = 47577 \times 10^{-7}$ $\sigma = 68976 \times 10^{-8}$ $3\sigma = 20692 \times 10^{-8}$

VIKING A FLT (CIF) ZDDL STAGE 0 IGN

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75 Figure 3.33

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .500$ START = 76924.300 SEC STOP = 76926.298 SEC
 MEAN = -5896×10^{-4} $\sigma^2 = 29692 \times 10^{-7}$ $\sigma = 5449 \times 10^{-5}$ $3\sigma = 16347 \times 10^{-5}$

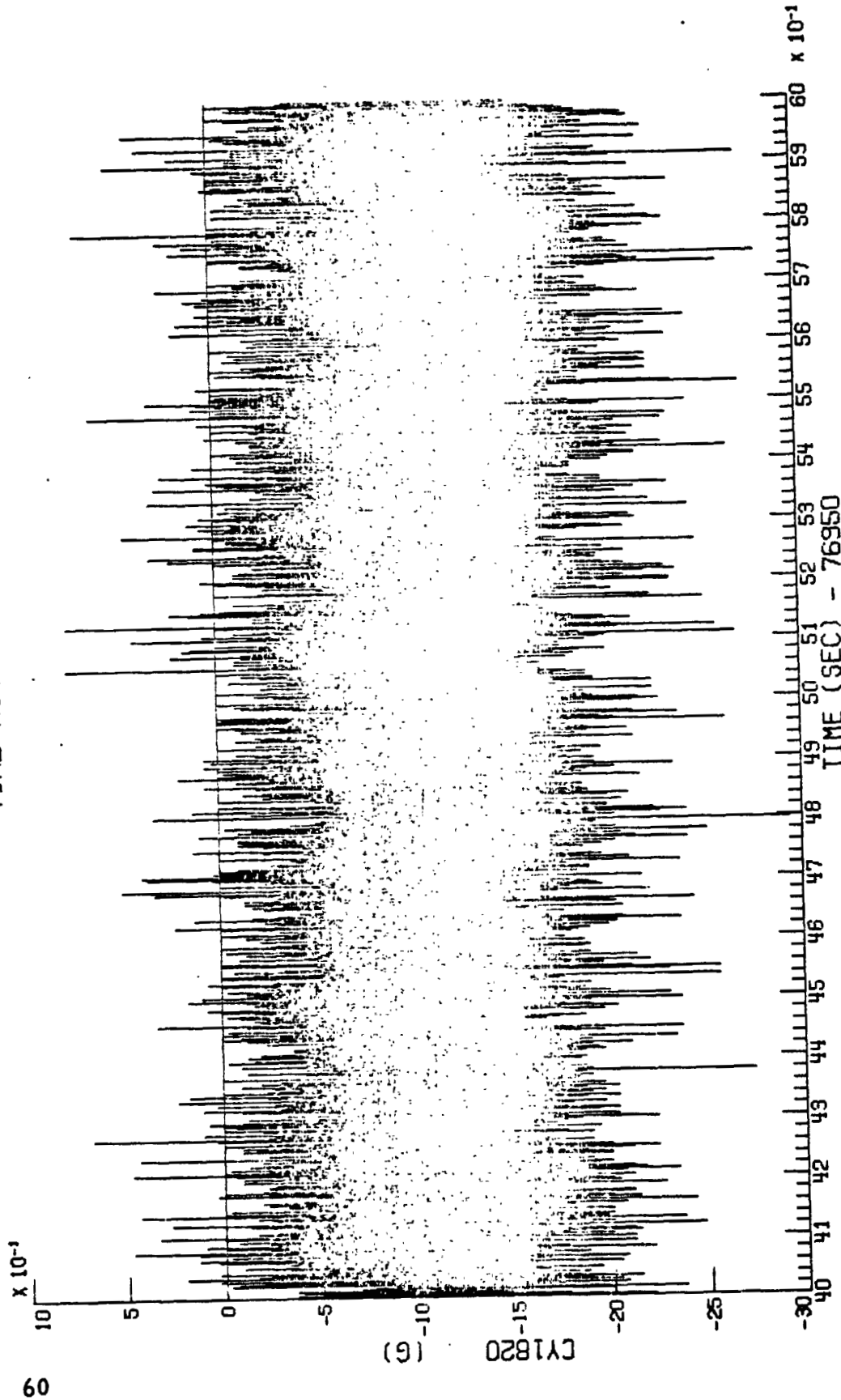
VIKING A FLT (CIF)

STAGE 0 IGN

ZODB

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TIME HISTORY



MIN = -2.938

MAX = .768

CY1820

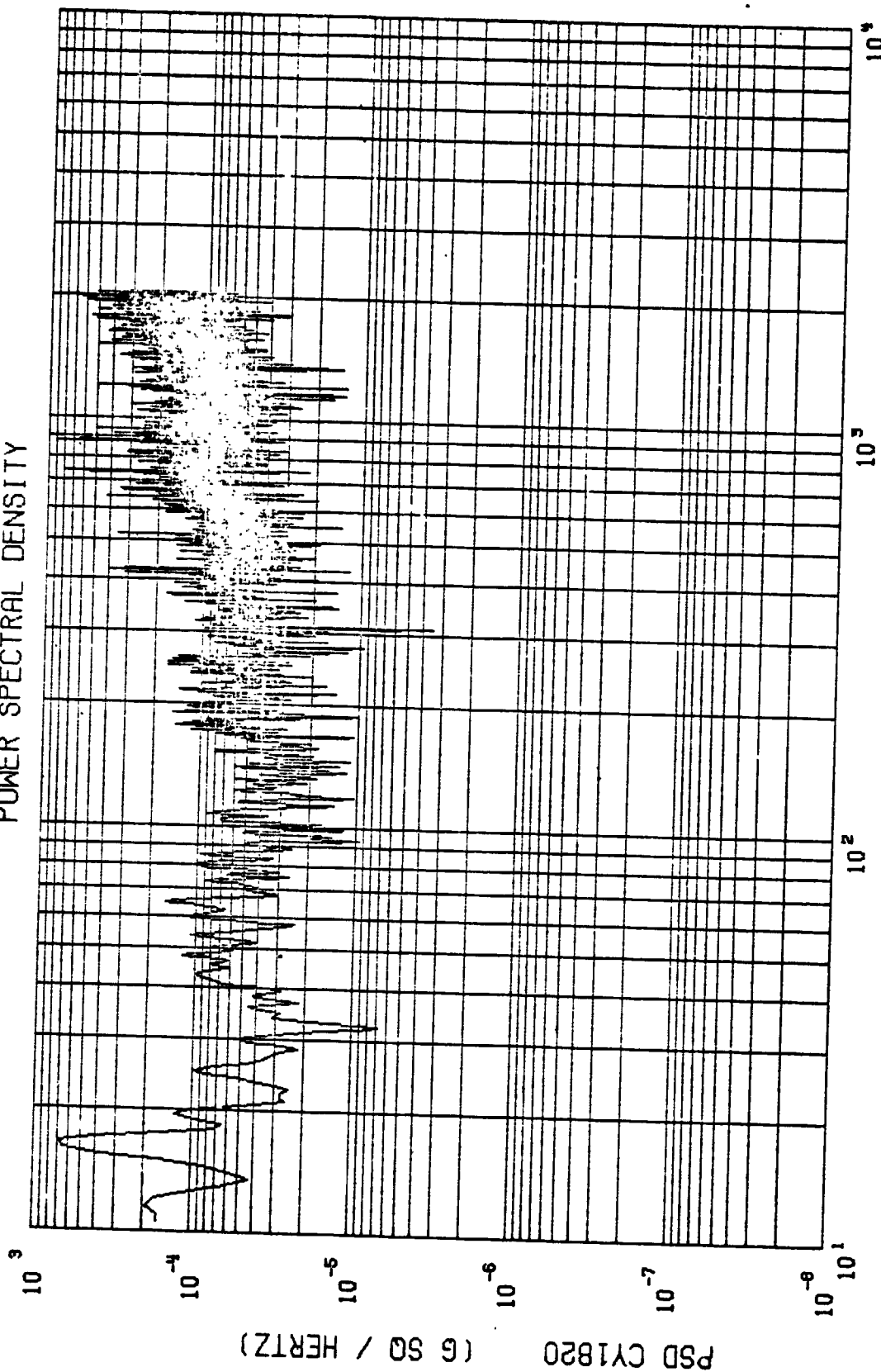
MAX Q

VIKING A FLT (CIF)

Figure 3.35a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .499$

START = 76954.000 SEC

STOP = 76956.000 SEC

MEAN = -10619×10^{-4}

$\sigma^2 = 26506 \times 10^{-5}$

$\sigma = 50503 \times 10^{-5}$

$3\sigma = 1515 \times 10^{-5}$

VIKING A FLT (CIF)

MAX Q

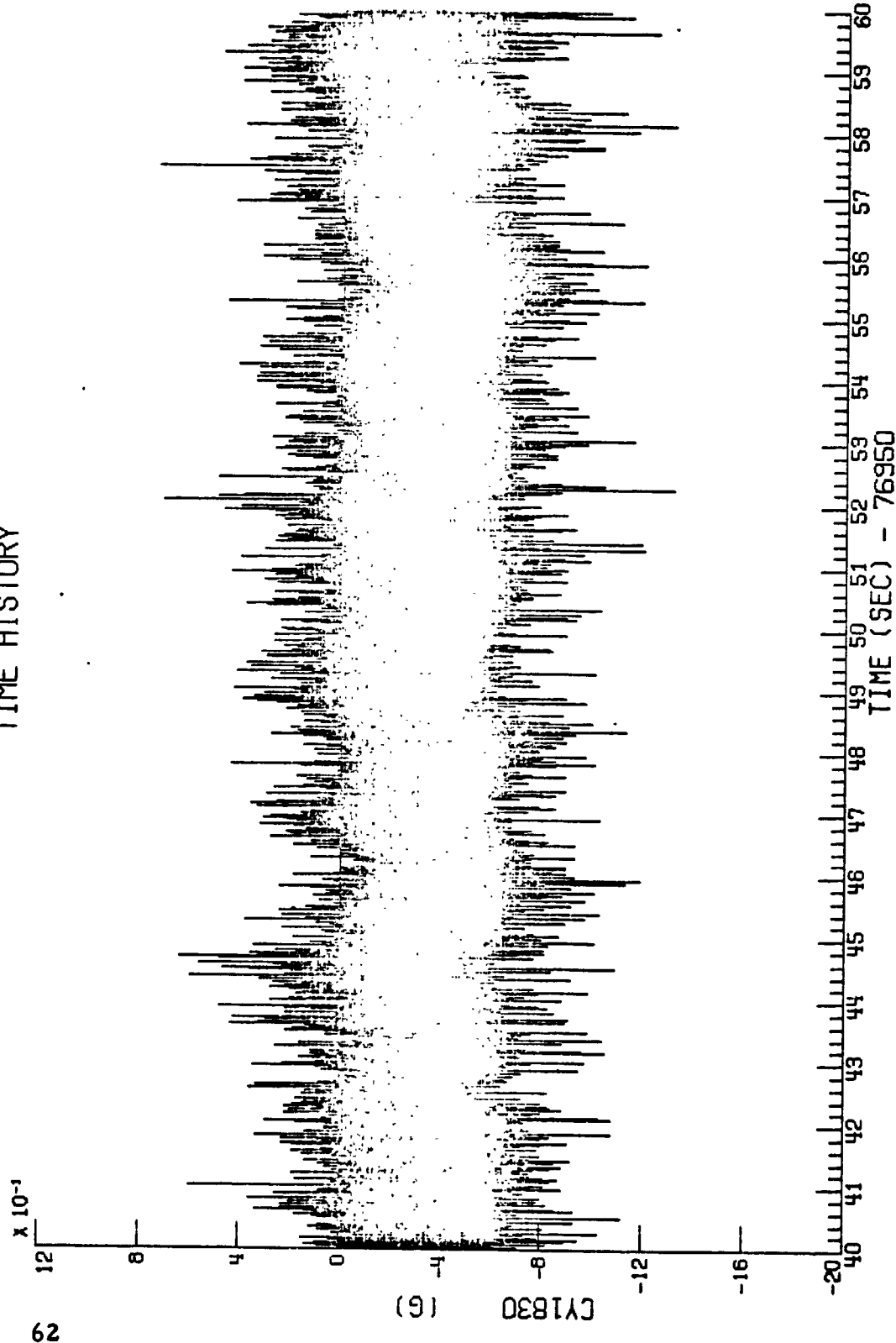
CY1820

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.35b

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TIME HISTORY



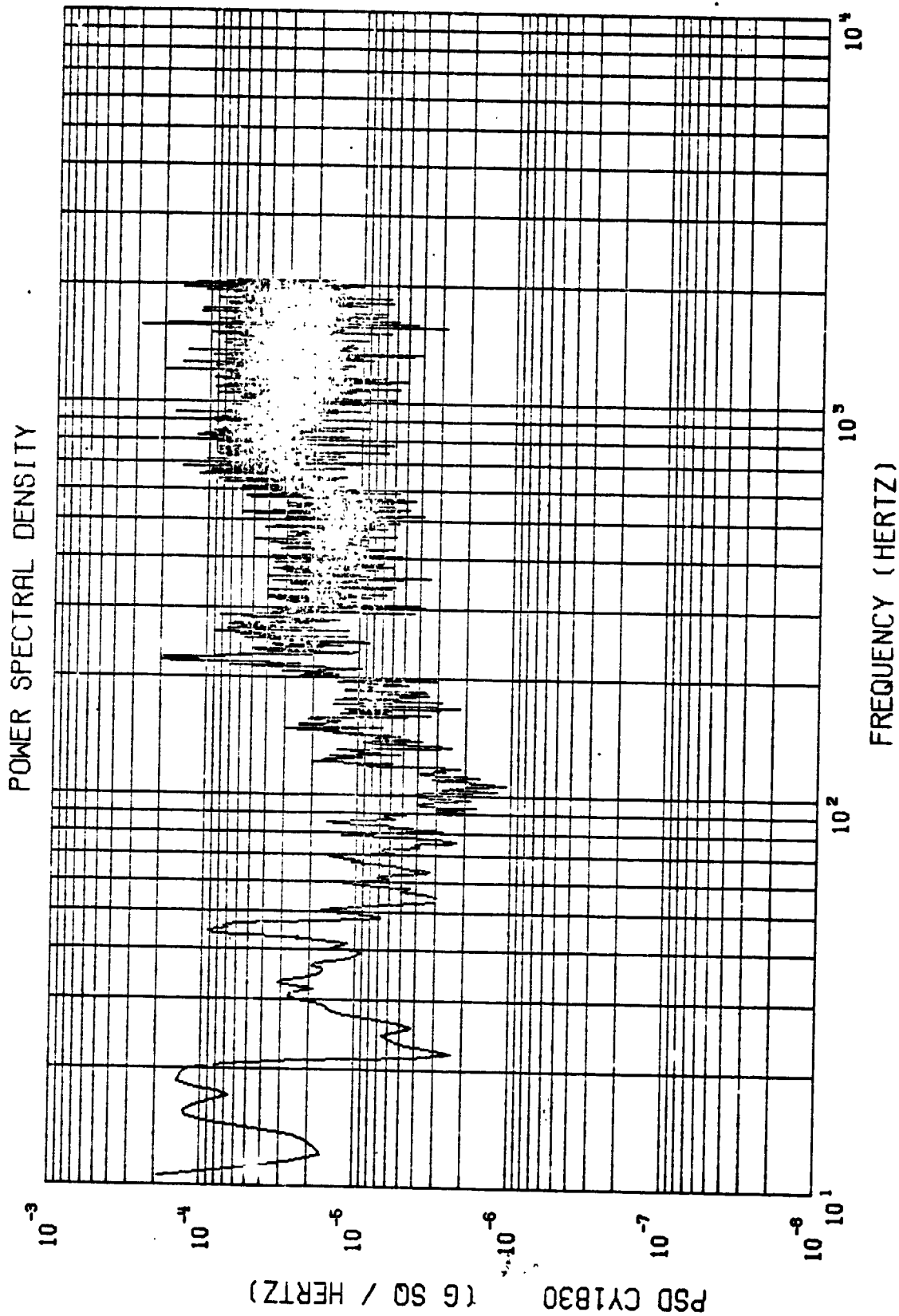
MAX = .732

MIN = -1.317

VIKING A FLT (CIF)

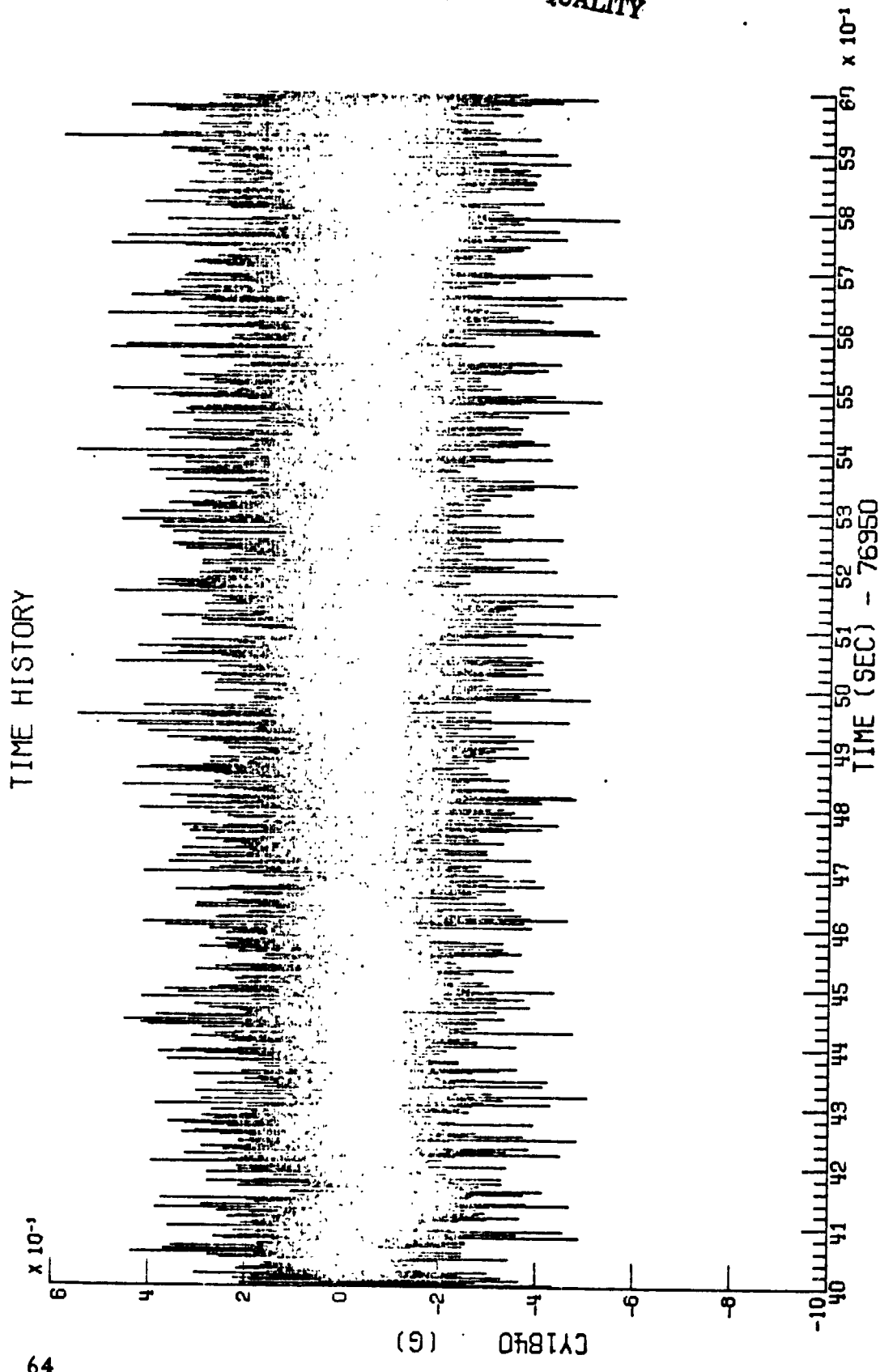
CY1830

MAX Q



$\Delta F = .499$
 $\text{MEAN} = -27684 \times 10^{-5}$ $\sigma^2 = 72651 \times 10^{-5}$ $\sigma = 26953 \times 10^{-5}$ $3\sigma = 80861 \times 10^{-5}$
 $\text{START} = 76954.000 \text{ SEC}$ $\text{STOP} = 76956.000 \text{ SEC}$
 VIKING A FLT (CIF) MAX Q CY1830
 NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75 Figure 3.36b

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CY1840
Figure 3.37a

VIKING A FLT (CIF)

MAX Q

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 28/21/75

POWER SPECTRAL DENSITY

10^{-3}

10^{-4}

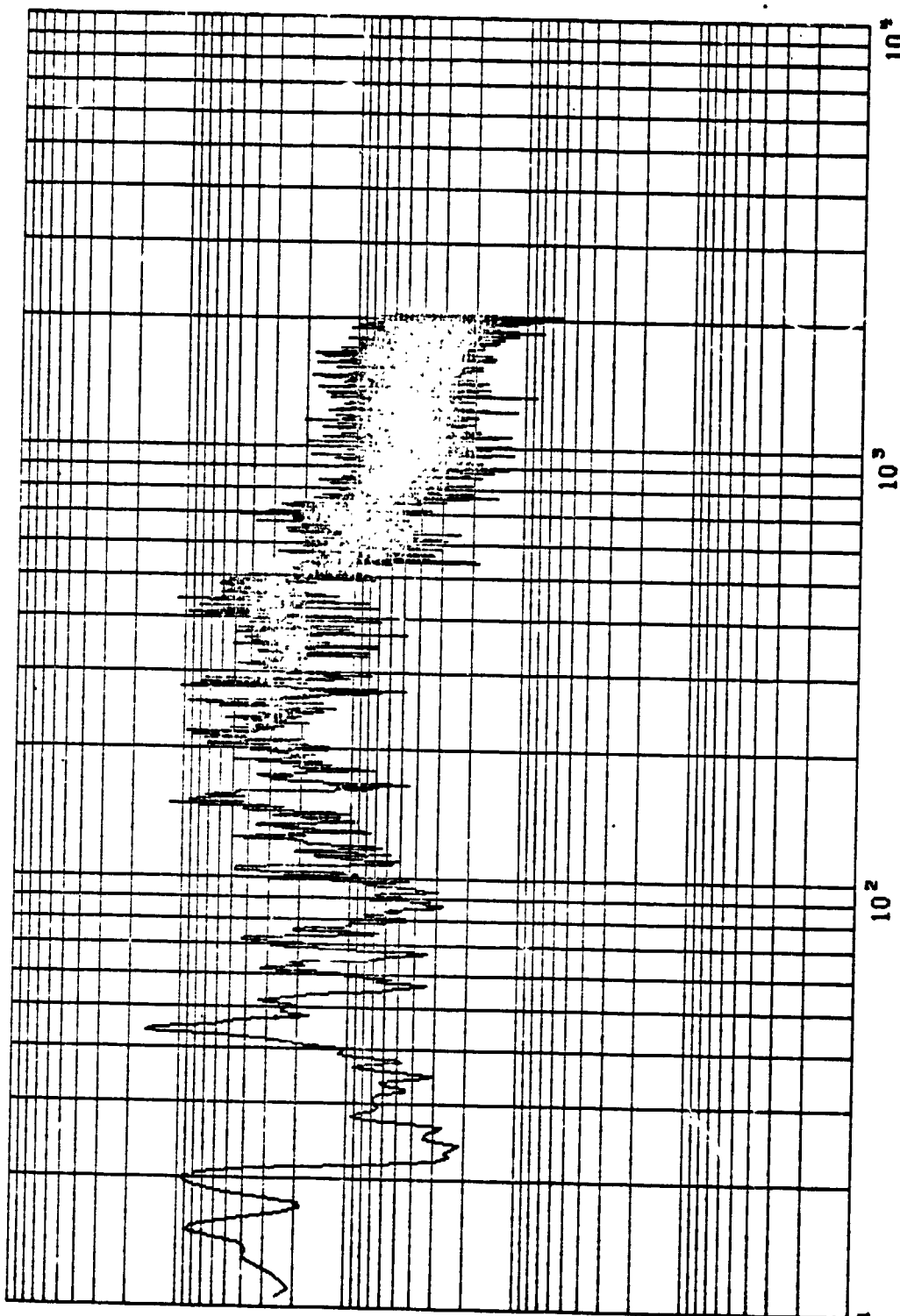
10^{-5}

10^{-6}

10^{-7}

10^{-8}

PSD CY1840 (G SQ / HERTZ)



FREQUENCY (HERTZ)

10^2

10^3

10^4

$\Delta F = .499$

START = 76954.000 SEC

STOP = 76958.000 SEC

MEAN = -14871×10^{-6} $\sigma^2 = 24646 \times 10^{-6}$

$\sigma = 15699 \times 10^{-6}$

$3\sigma = 47098 \times 10^{-6}$

VIKING A FLT (CIF)

MAX Q

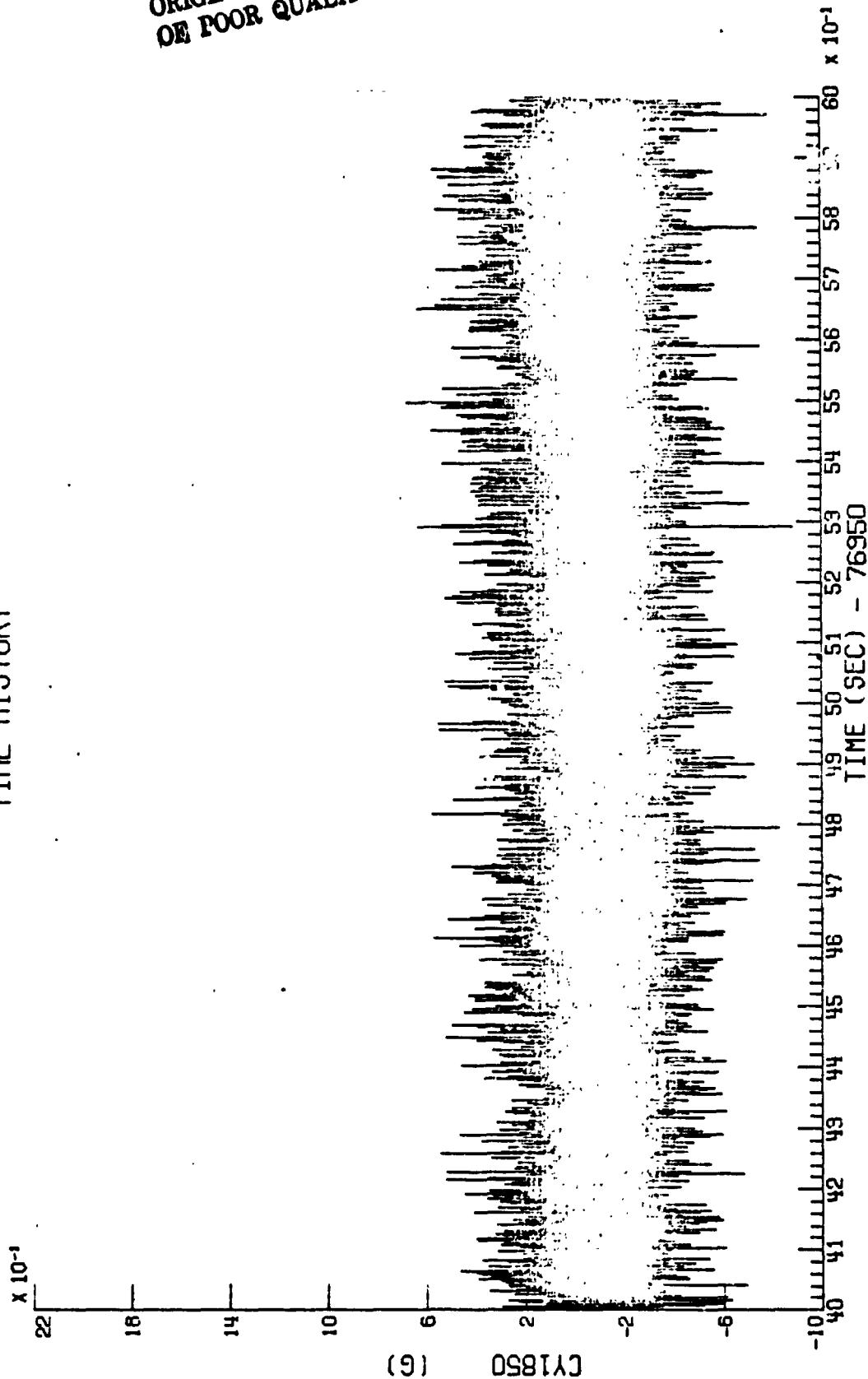
CY1840

NSA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.37b

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TIME HISTORY



MIN = -.883

MAX = .672

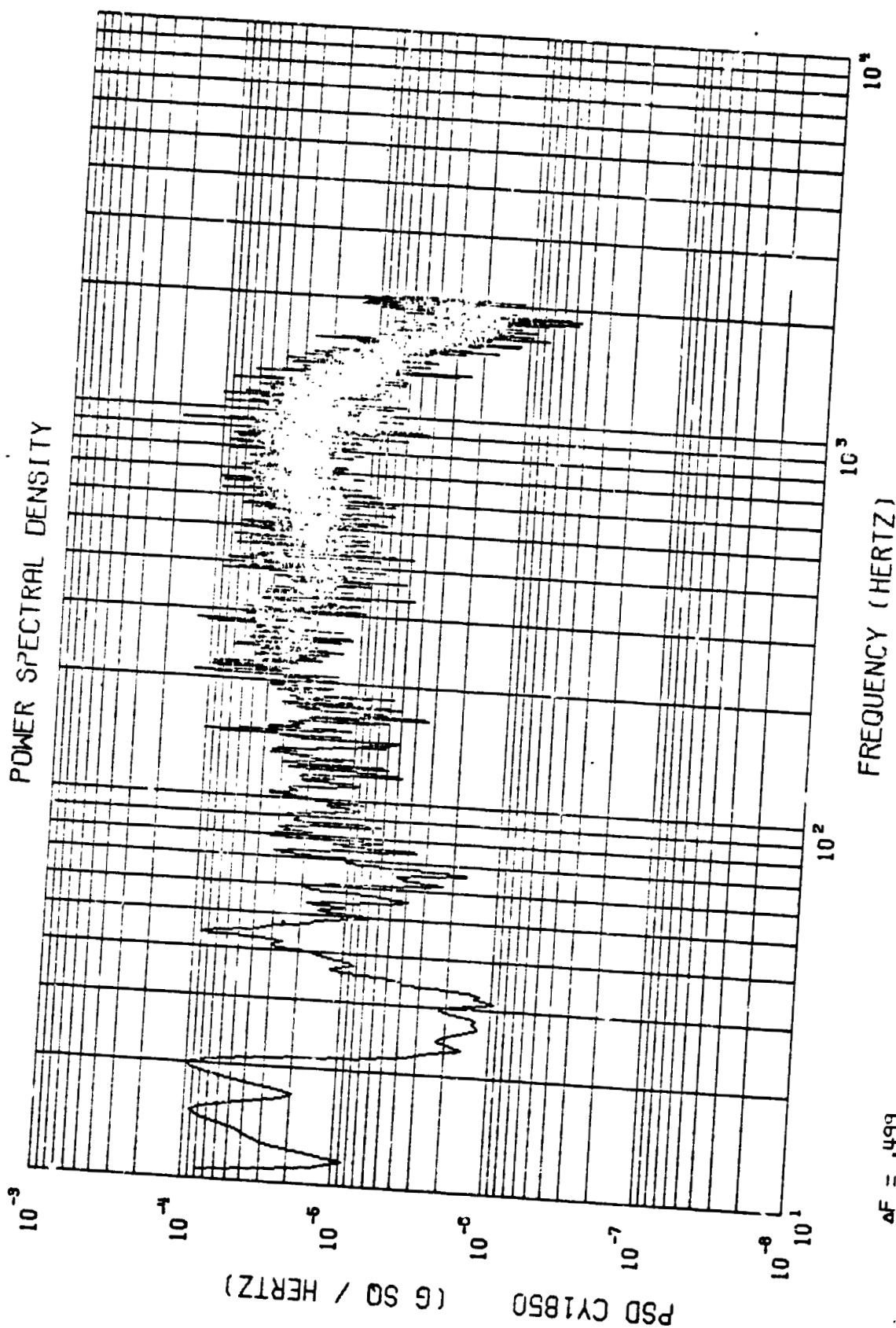
CY1850

MAX Q

VIKING A FLT (CIF)

Figure 3.38a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75



$\Delta F = .499$

MEAN = -75377×10^{-6} $\sigma^2 = 42817 \times 10^{-6}$ START = 76954.000 SEC

STOP = 76956.000 SEC

$\sigma = 20692 \times 10^{-6}$

$3\sigma = 62077 \times 10^{-6}$

VIKING A FLT (CIF)

MAX Q

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

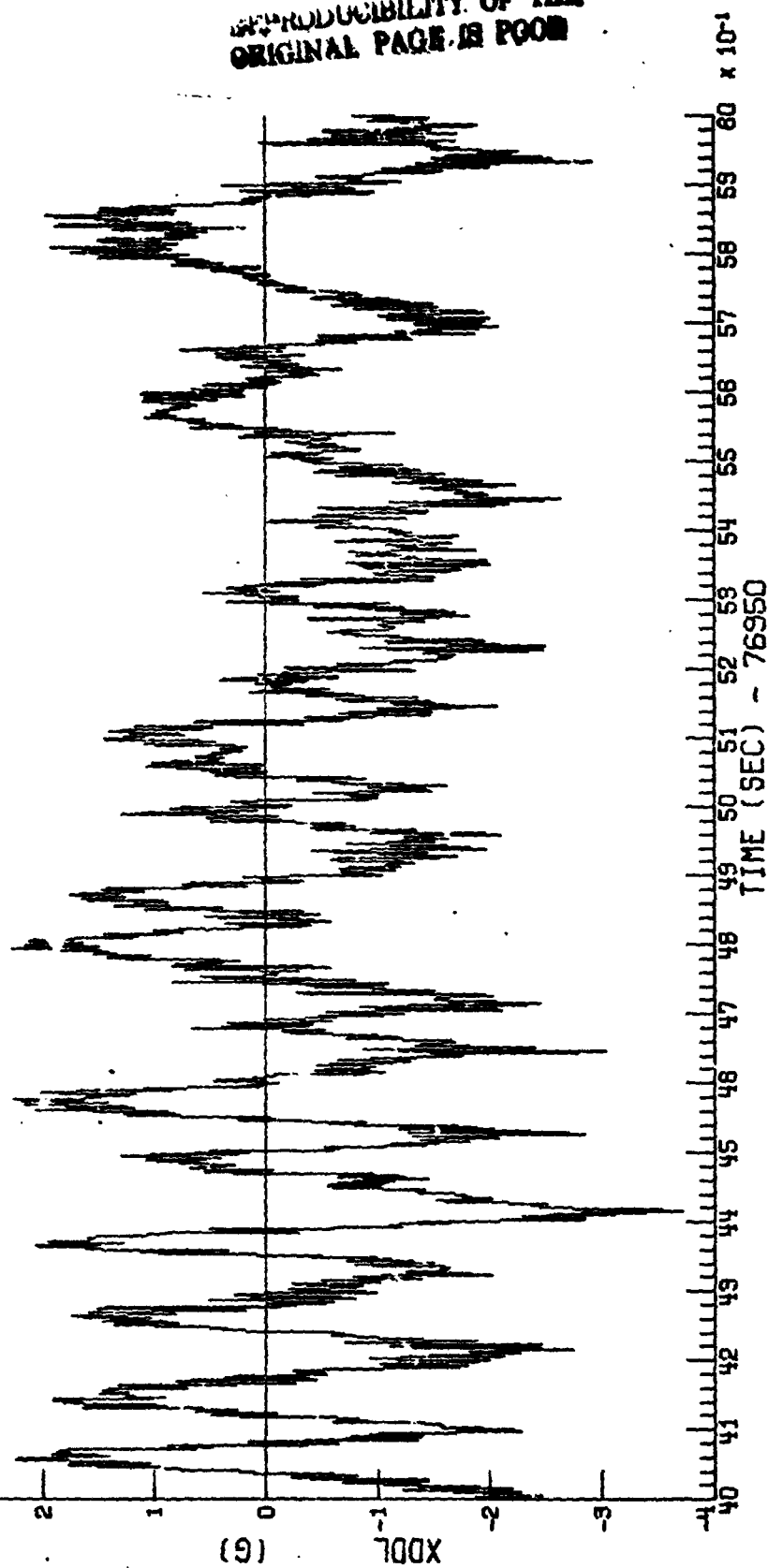
CY1850

Figure 3.39b

TIME HISTORY

$\times 10^{-1}$

68



MIN = -.370

MAX = .228

XDDL

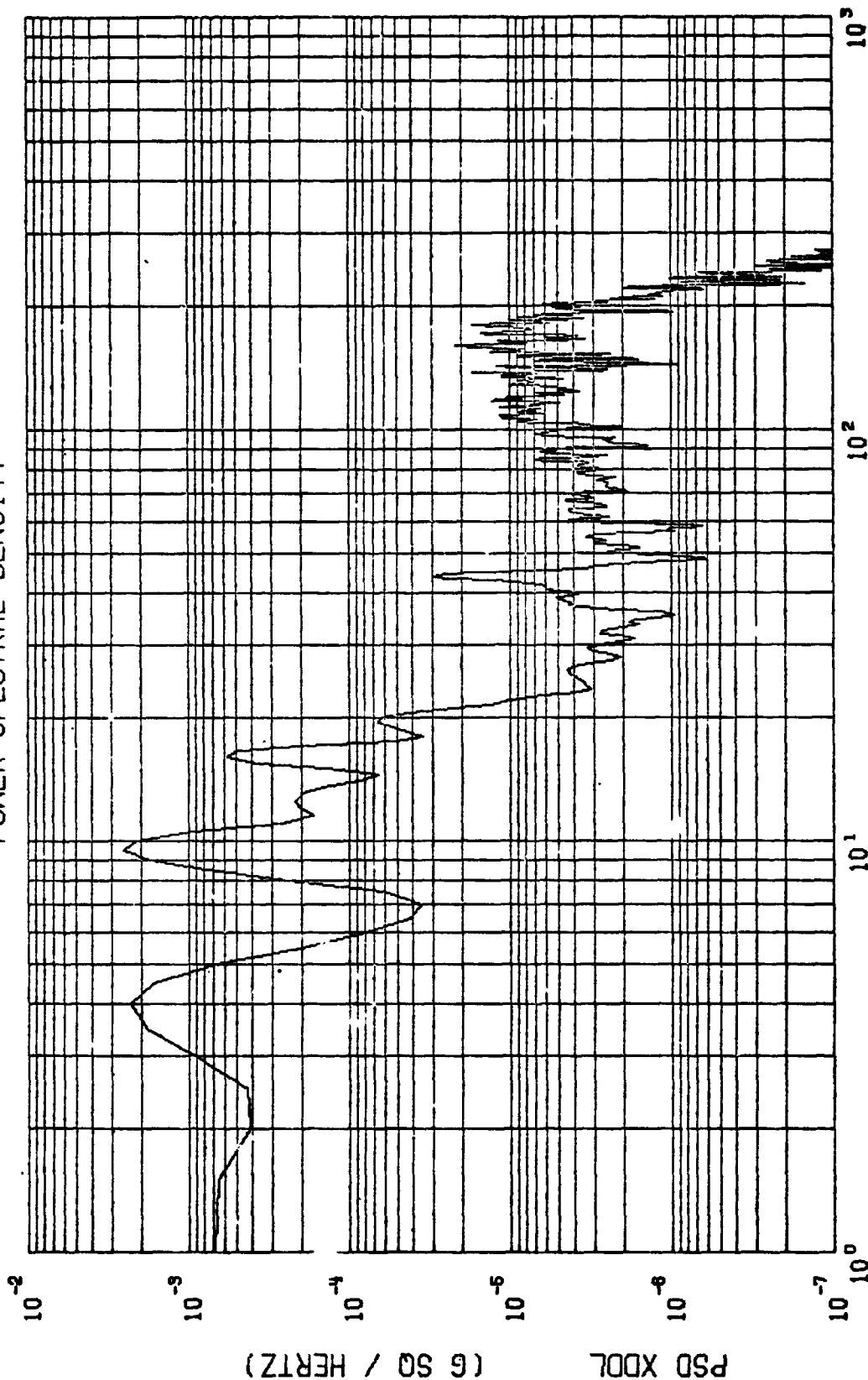
MAX Q

VIKING A FLT (CIF)

Figure 3.39a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

POWER SPECTRAL DENSITY



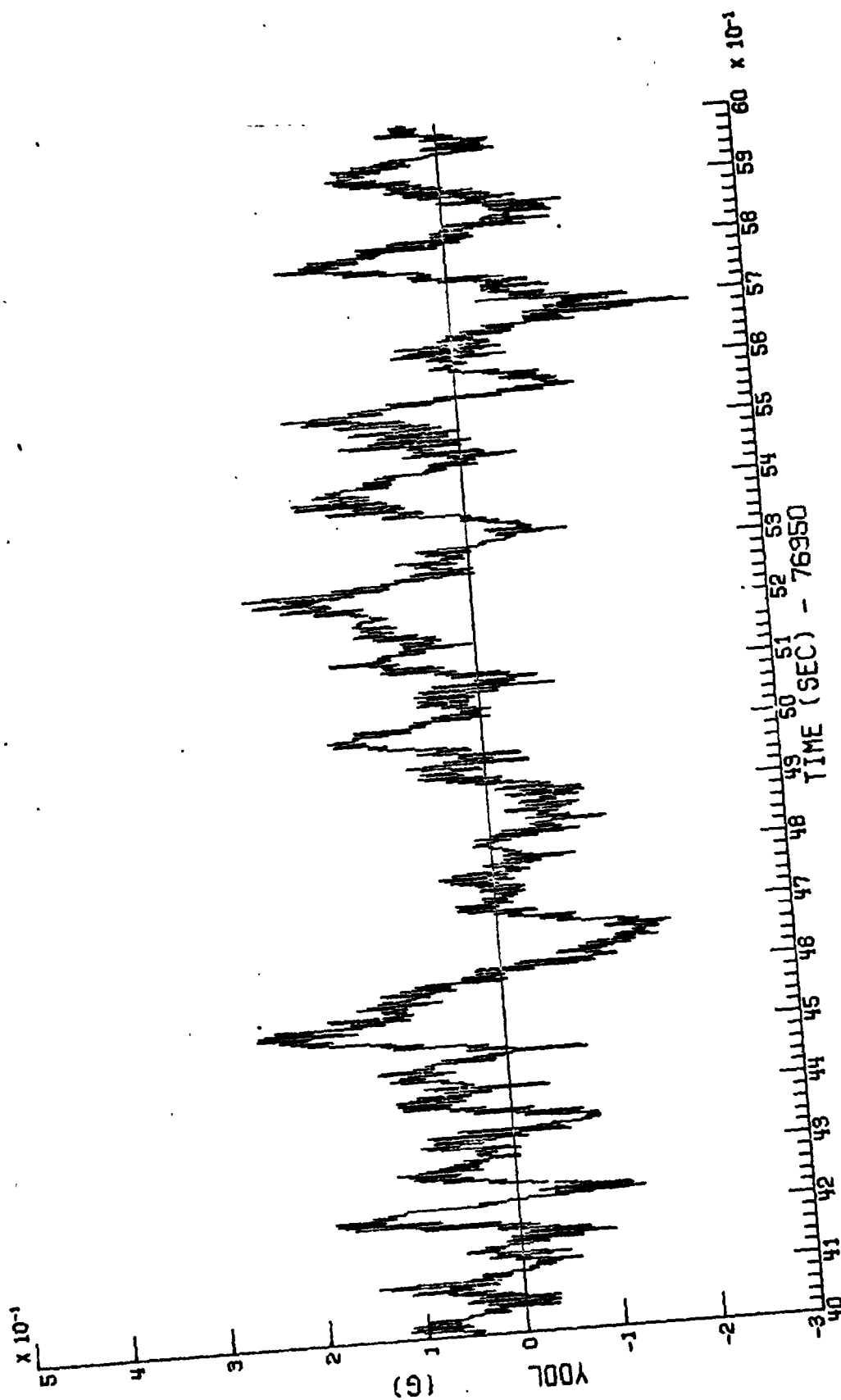
FREQUENCY (HERTZ)

$\Delta F = .500$ $\text{START} = 76954.000 \text{ SEC}$ $\text{STOP} = 76956.000 \text{ SEC}$
 $\text{MEAN} = -37452 \times 10^{-6}$ $\sigma^2 = 1225 \times 10^{-6}$ $\sigma = 11068 \times 10^{-6}$ $3\sigma = 33205 \times 10^{-6}$

VIKING A FLT (CIF) MAX Q XDOL

Figure 3.39b

TIME HISTORY



MIN = -.243

MAX = .251

YDDL

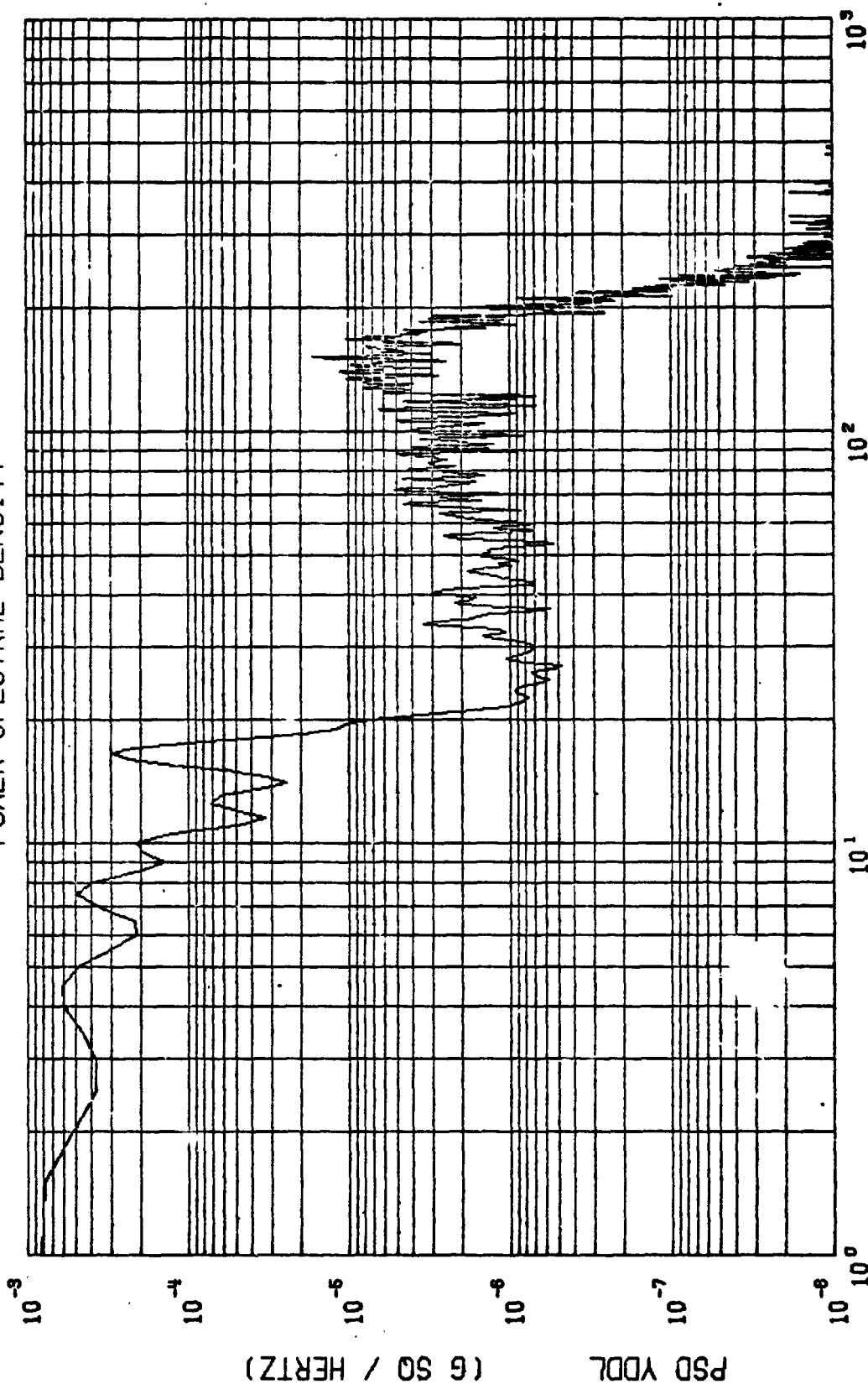
MAX Q

Figure 3.40a

VIKING A FLT (CIF)

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

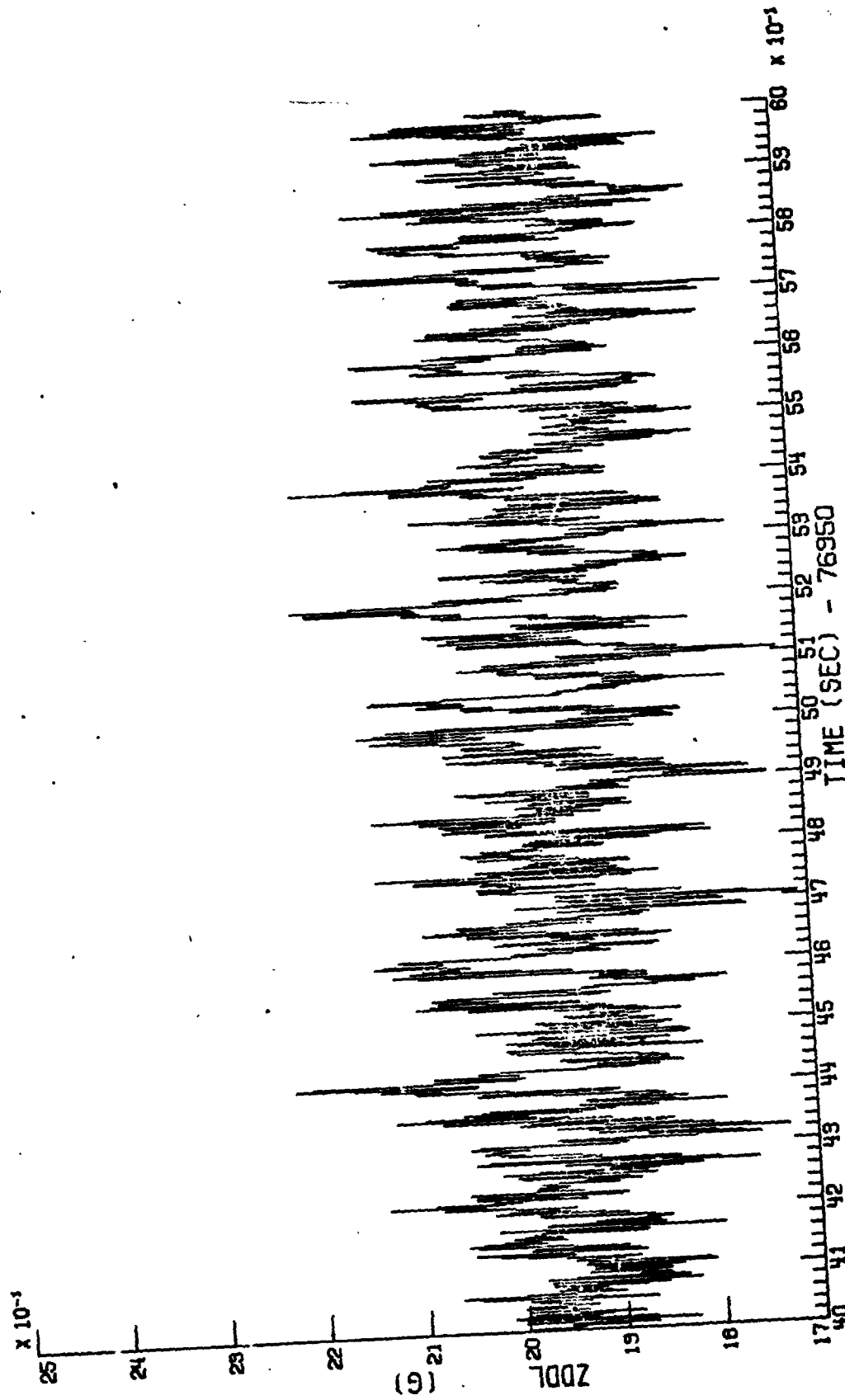
$\Delta F = .500$
 $MEAN = 22164 \times 10^{-5}$ $\sigma^2 = 55841 \times 10^{-7}$ $\sigma = 74727 \times 10^{-4}$ $3\sigma = 22418 \times 10^{-5}$
 $START = 76954.000 \text{ SEC}$ $STOP = 76956.000 \text{ SEC}$

VIKING A FLT (CIF)

MAX Q

YDDL

TIME HISTORY



MIN = 1.711

MAX = 2.224

Z00L

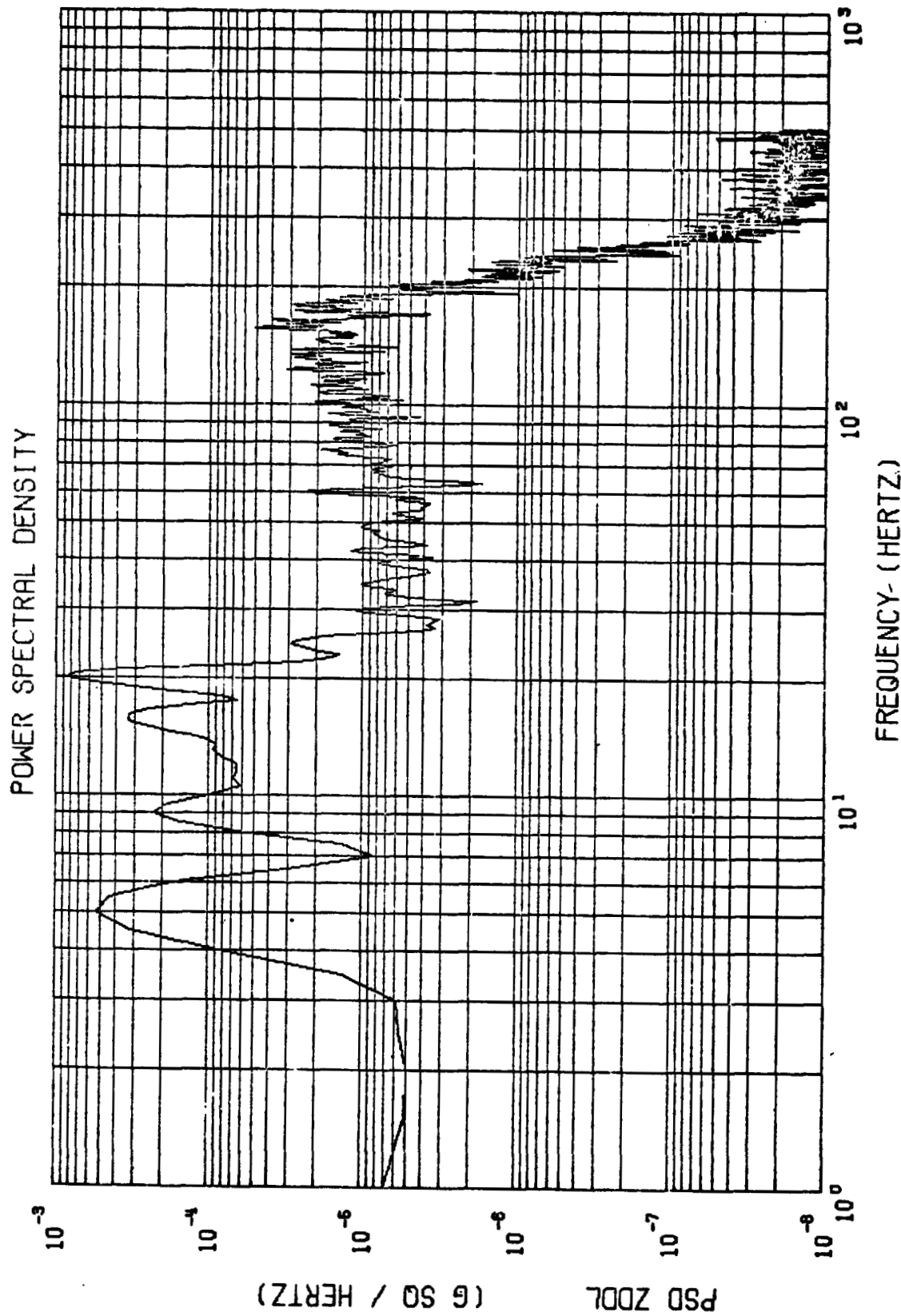
MAX Q

VIKING A FLT (CIF)

Figure 3.41a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

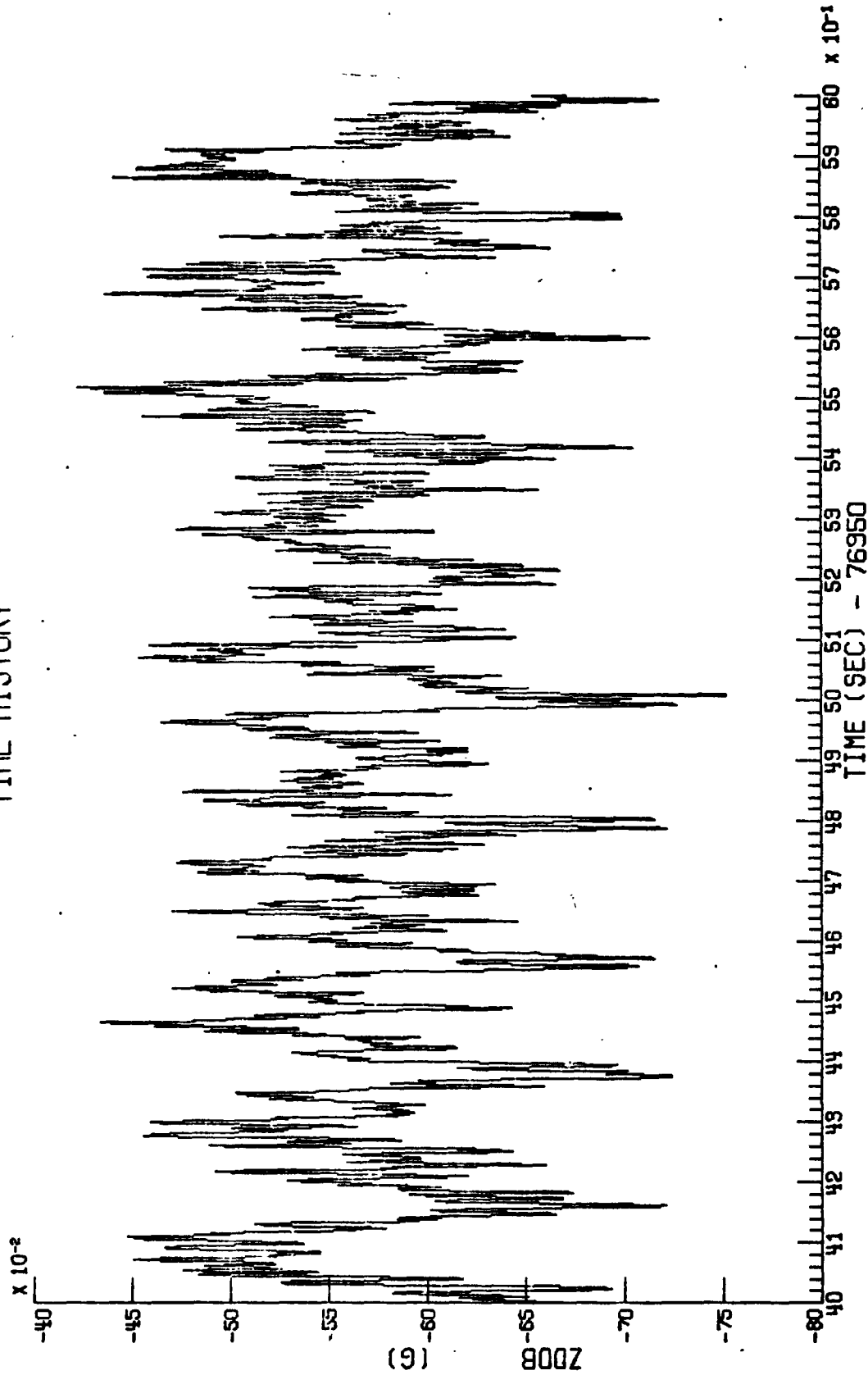
REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR



$\Delta F = .500$ START = 76354.000 SEC STOP = 76358.000 SEC
 MEAN = 19504×10^{-4} $\sigma^2 = 62066 \times 10^{-7}$ $\sigma = 78776 \times 10^{-4}$ $3\sigma = 23632 \times 10^{-4}$

VIKING A FLT (CIF) MAX Q ZDOL

TIME HISTORY



MIN = -.751

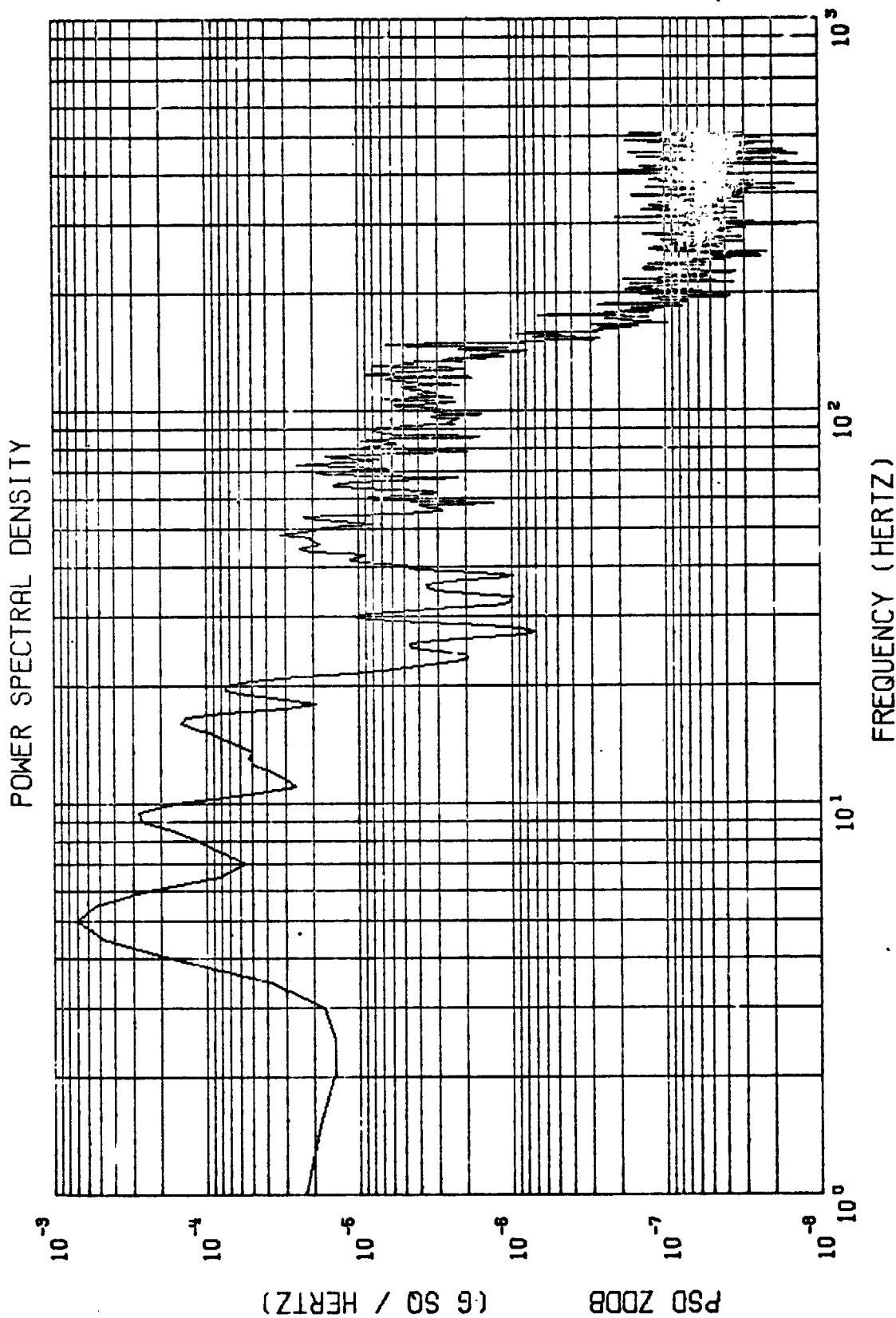
MAX = -.422

Z008

MAX Q

VIKING A FLT (CIF)

Figure 3.42a



$\Delta F = .500$ START = 76954.000 SEC STOP = 76956.000 SEC
 MEAN = -5688×10^{-4} $\sigma^2 = 32428 \times 10^{-7}$ $\sigma = 5695 \times 10^{-4}$ $3\sigma = 17083 \times 10^{-4}$

VIKING A FLT (CIF)

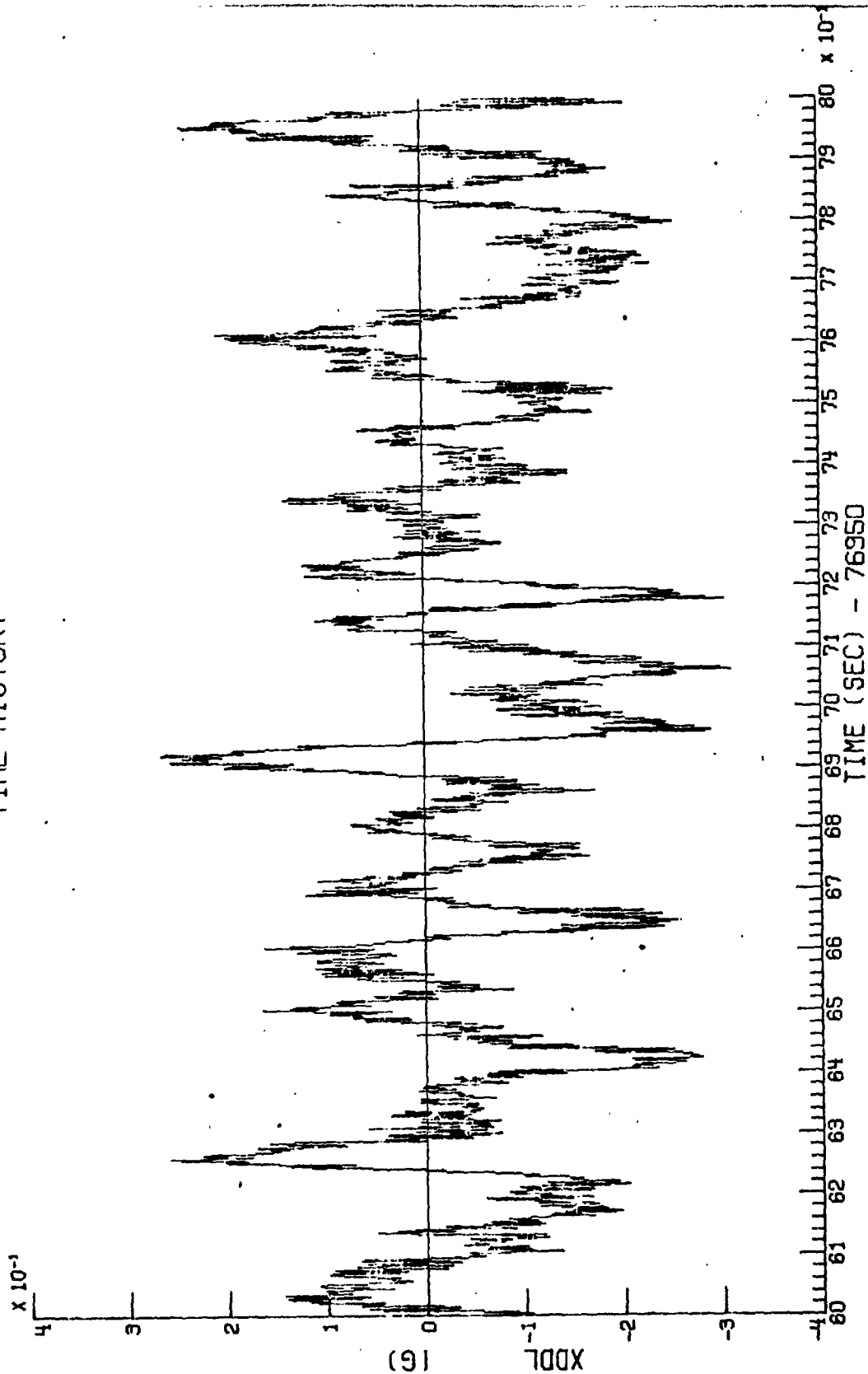
MAX Q

ZOOB

Figure 3.42b

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

TIME HISTORY



MIN = -.309

MAX = .266

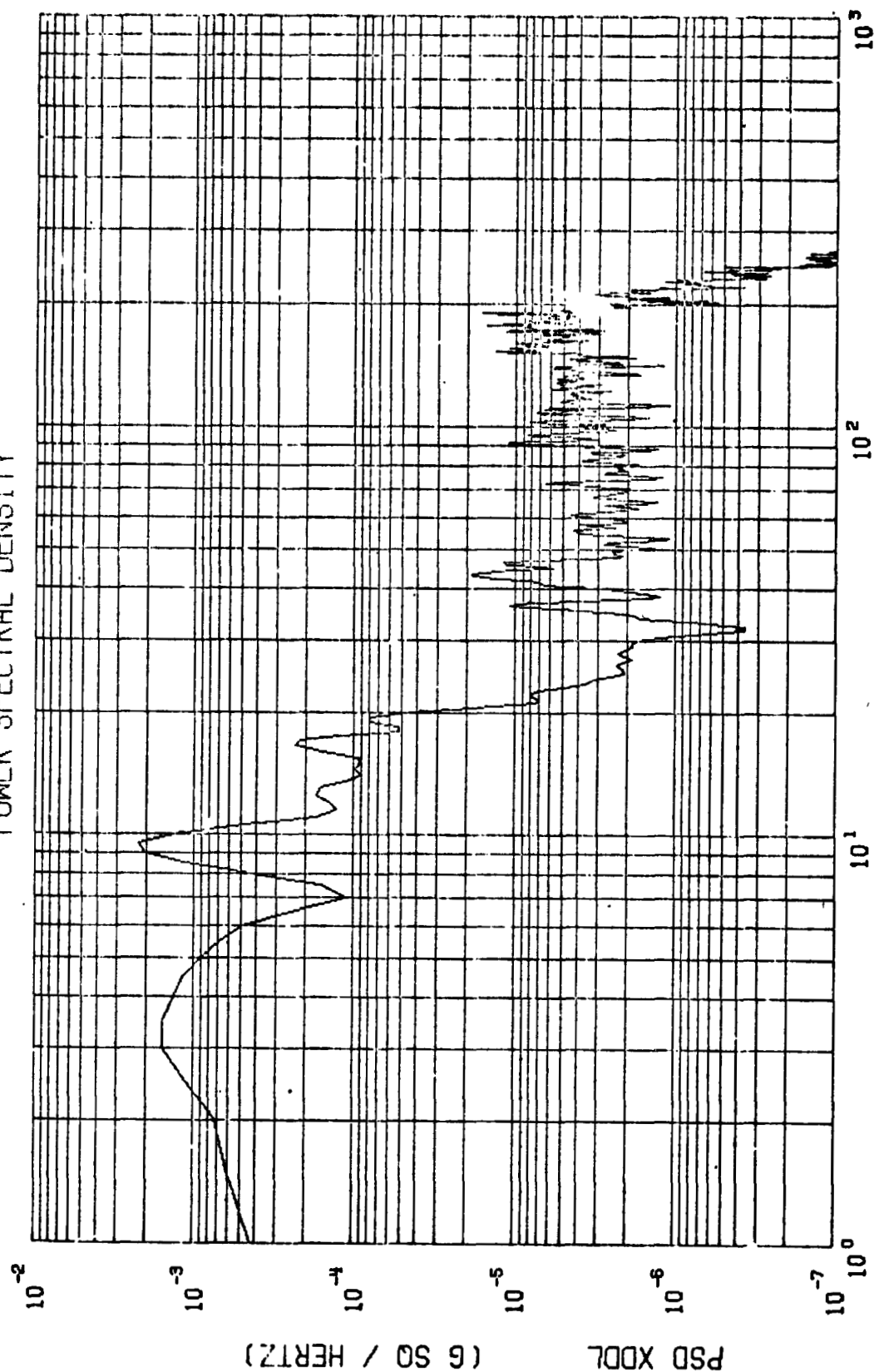
XDDL
Figure 3.43a

MAX Q

VIKING A FLT (CIF)

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

POWER SPECTRAL DENSITY



$\Delta F = .500$

START = 76956.000 SEC

STOP = 76958.000 SEC

MEAN = -37633×10^{-6}

$\sigma^2 = 11504 \times 10^{-6}$

$\sigma = 10726 \times 10^{-5}$

$3\sigma = 32178 \times 10^{-5}$

VIKING A FLT (CIF)

MAX Q

XDDL

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

Figure 3.43b

TIME HISTORY

$\times 10^{-1}$

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

78

(G)

YDDL

TIME (SEC) - 76950

MIN = -.196

MAX = .249

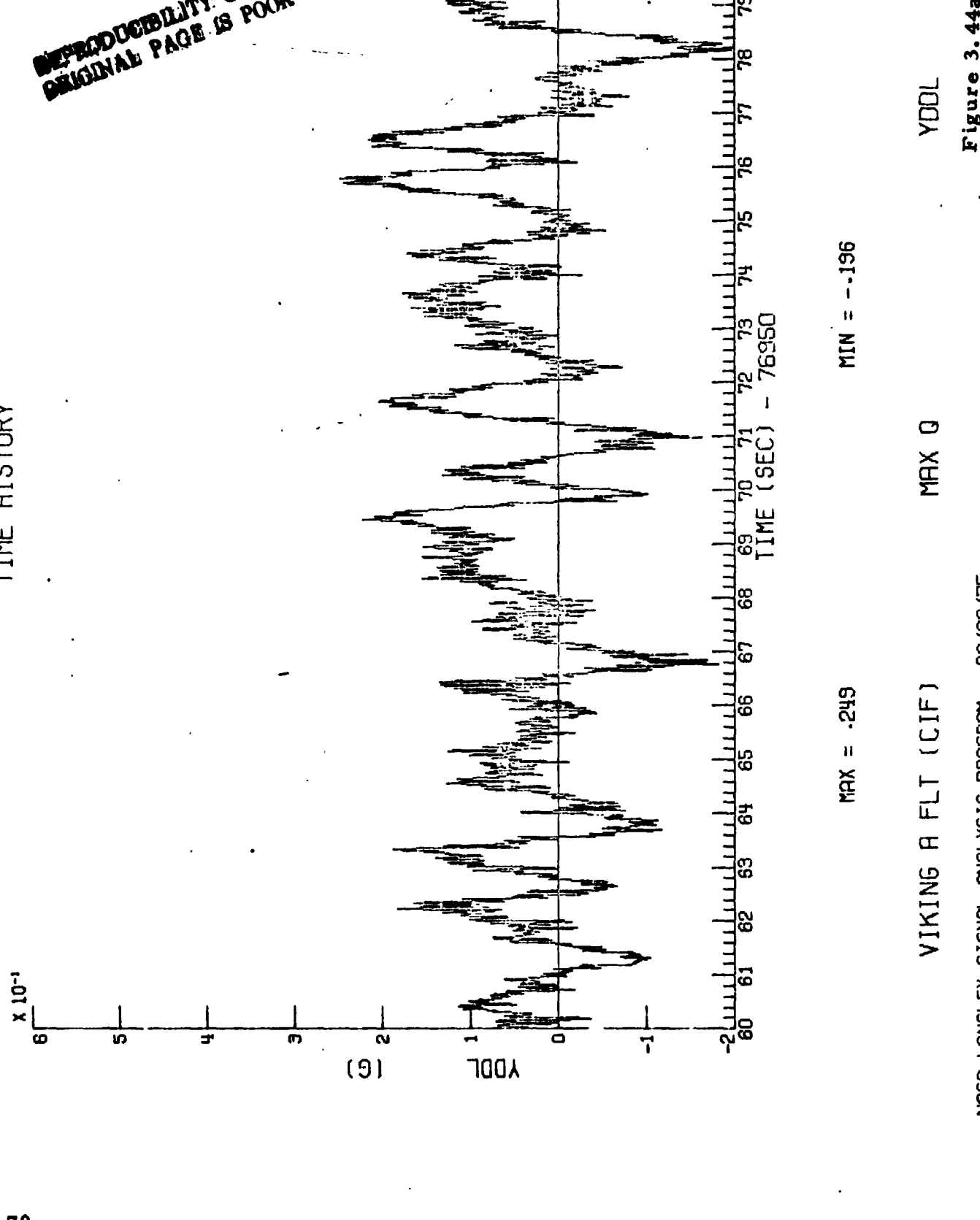
YDDL

MAX 0

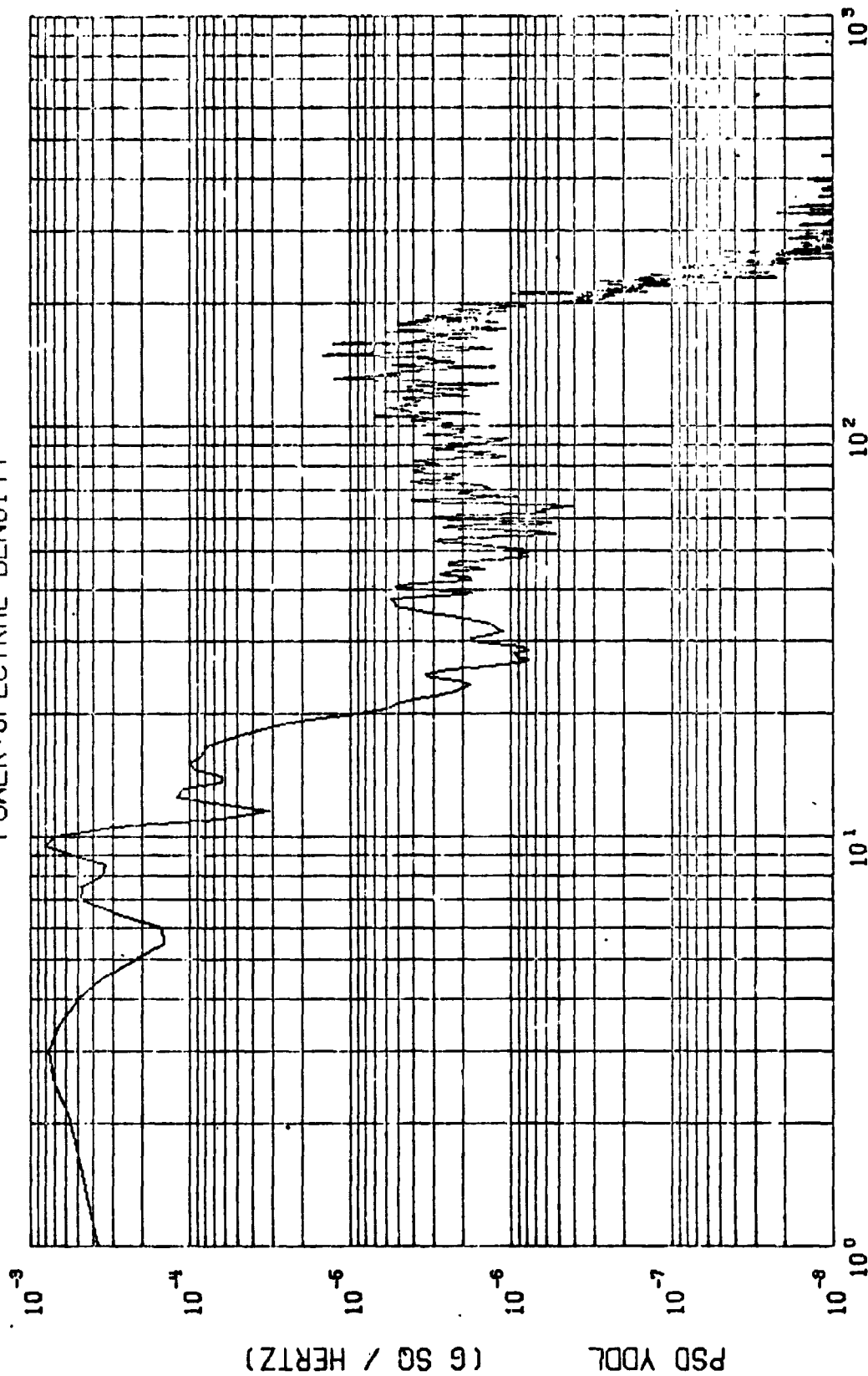
VIKING A FLT (CIF)

Figure 3.44a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75



POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .500$

START = 76956.000 SEC

STOP = 76958.000 SEC

MEAN = 40284×10^{-5}

$\sigma^2 = 59576 \times 10^{-7}$

$\sigma = 77185 \times 10^{-5}$

$3\sigma = 23155 \times 10^{-5}$

VIKING A FLT (CIF)

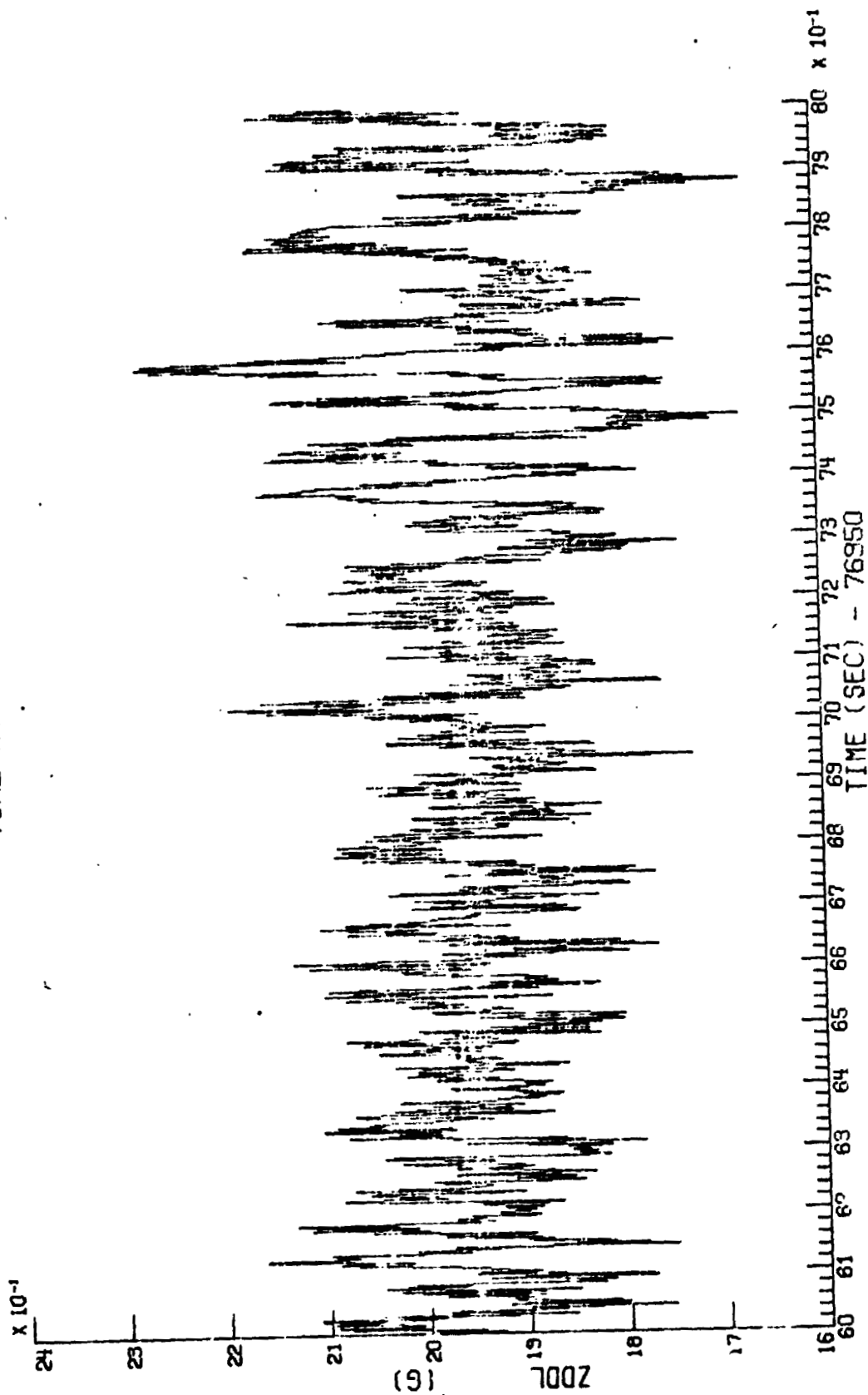
MAX Q

YDDL

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

Figure 3.44b

TIME HISTORY



MIN = 1.671

MAX = 2.279

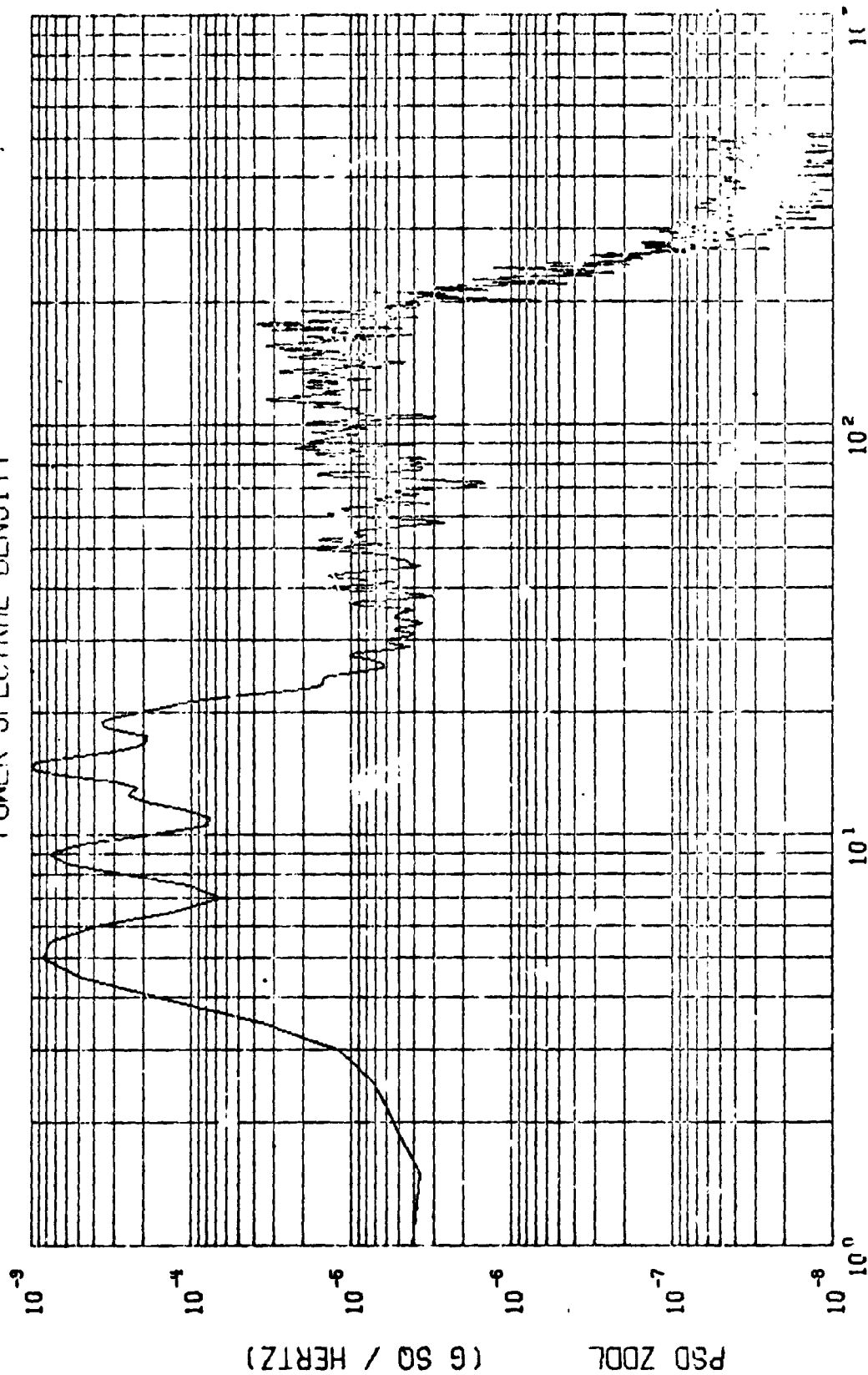
Z00L

MAX 0

VIKING A FLT (CIF)

Figure 3.45a

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta f = .500$ START = 76956.000 SEC STOP = 76958.000 SEC
 MEAN = 1947×10^{-3} $\sigma^2 = 83408 \times 10^{-7}$ $\sigma = 51328 \times 10^{-6}$ $5\sigma = 27398 \times 10^{-5}$

VIKING A FLT (CIF)

MAX 0

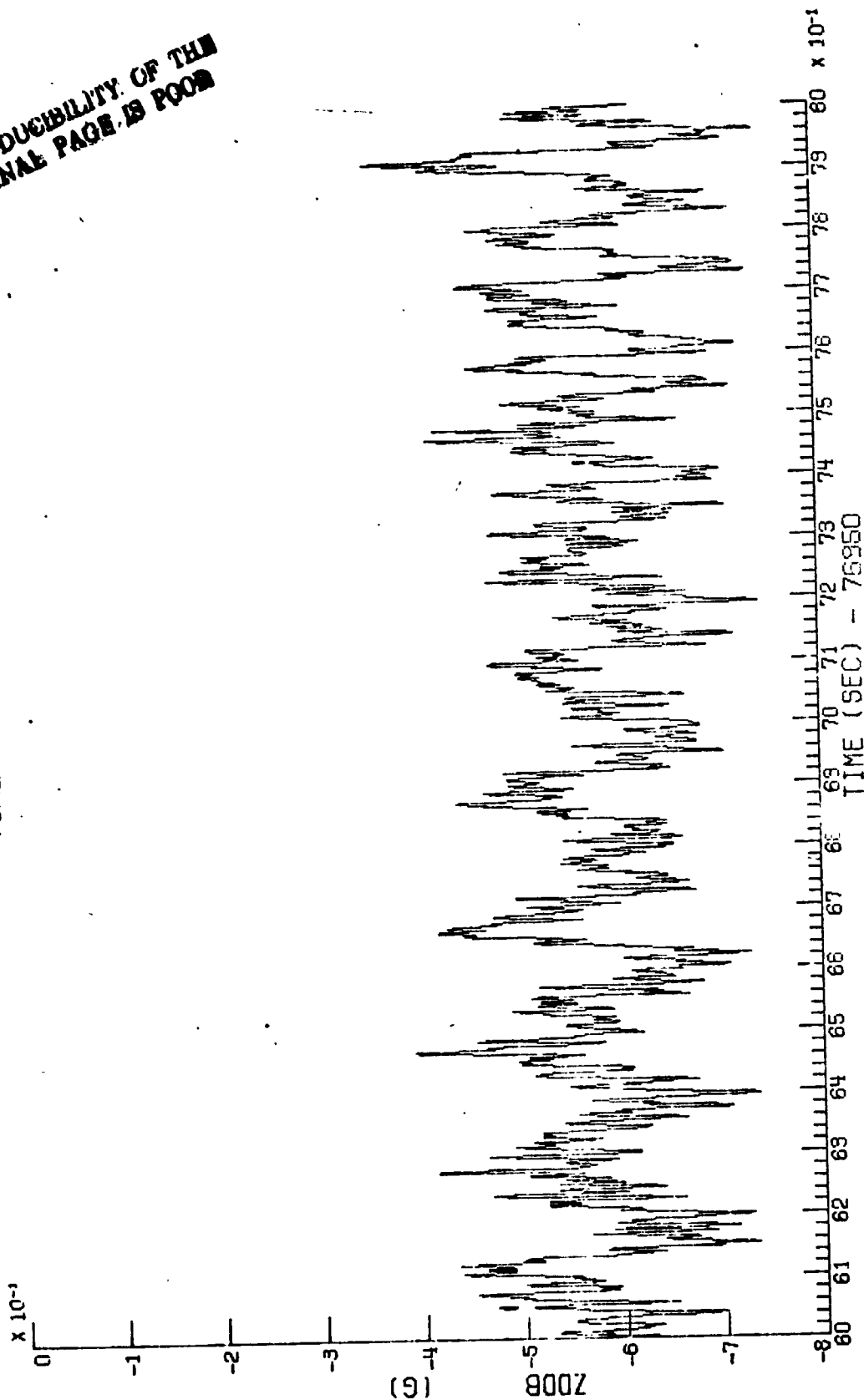
ZDOL

Figure 3.45b

NEISA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR

TIME HISTORY



MIN = -.743

MAX = -.353

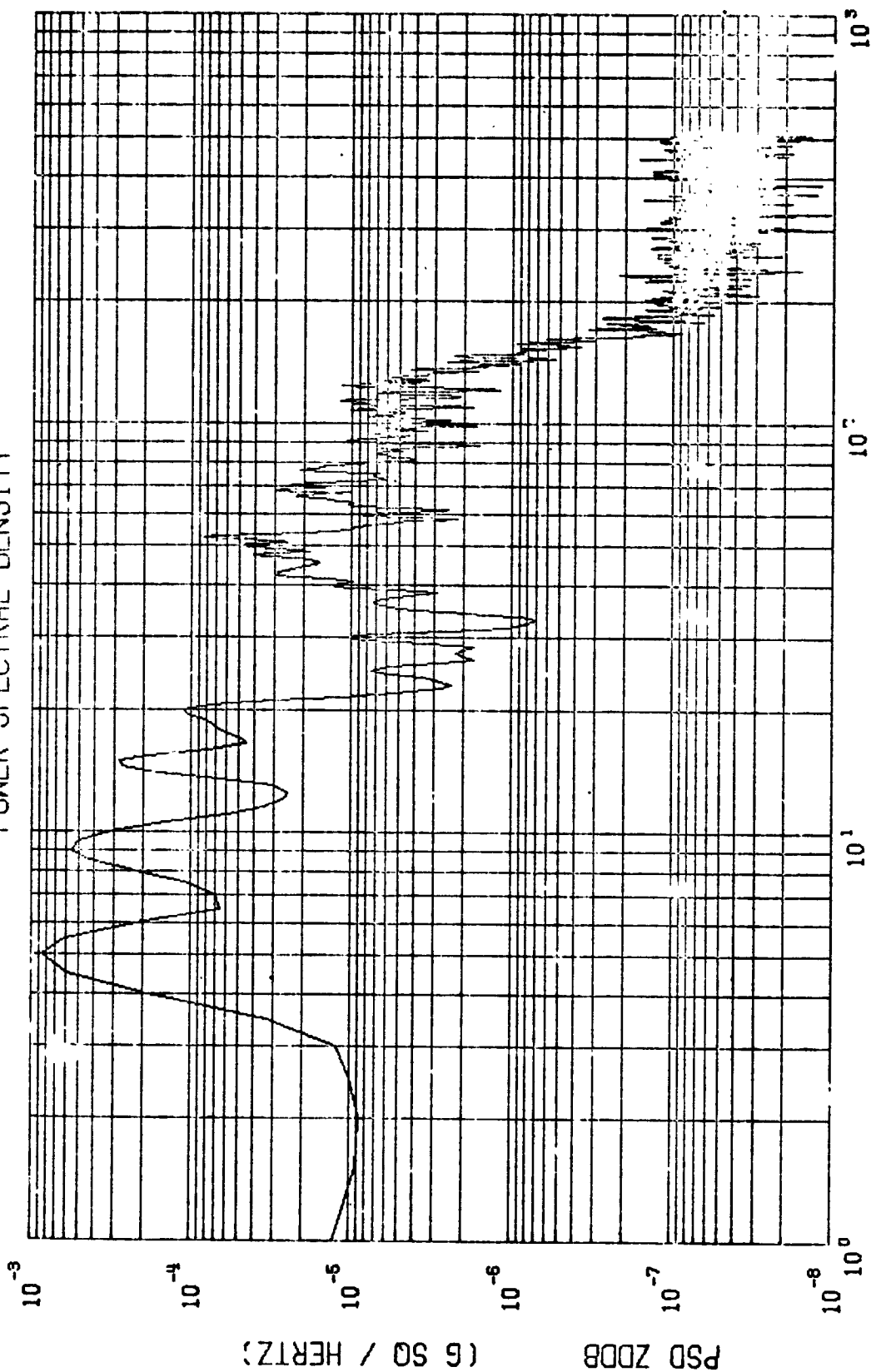
Z008

MAX 0

VIKING A FLT (CIF)

Figure 3.46a

POWER SPECTRAL DENSITY



$\Delta F = .500$
 $\text{START} = 76956.000 \text{ SEC}$
 $\text{STOP} = 76958.000 \text{ SEC}$
 $\text{MEAN} = -57683 \times 10^{-5}$
 $\sigma^2 = 46007 \times 10^{-7}$
 $\sigma = 67828 \times 10^{-4}$
 $3\sigma = 20348 \times 10^{-5}$

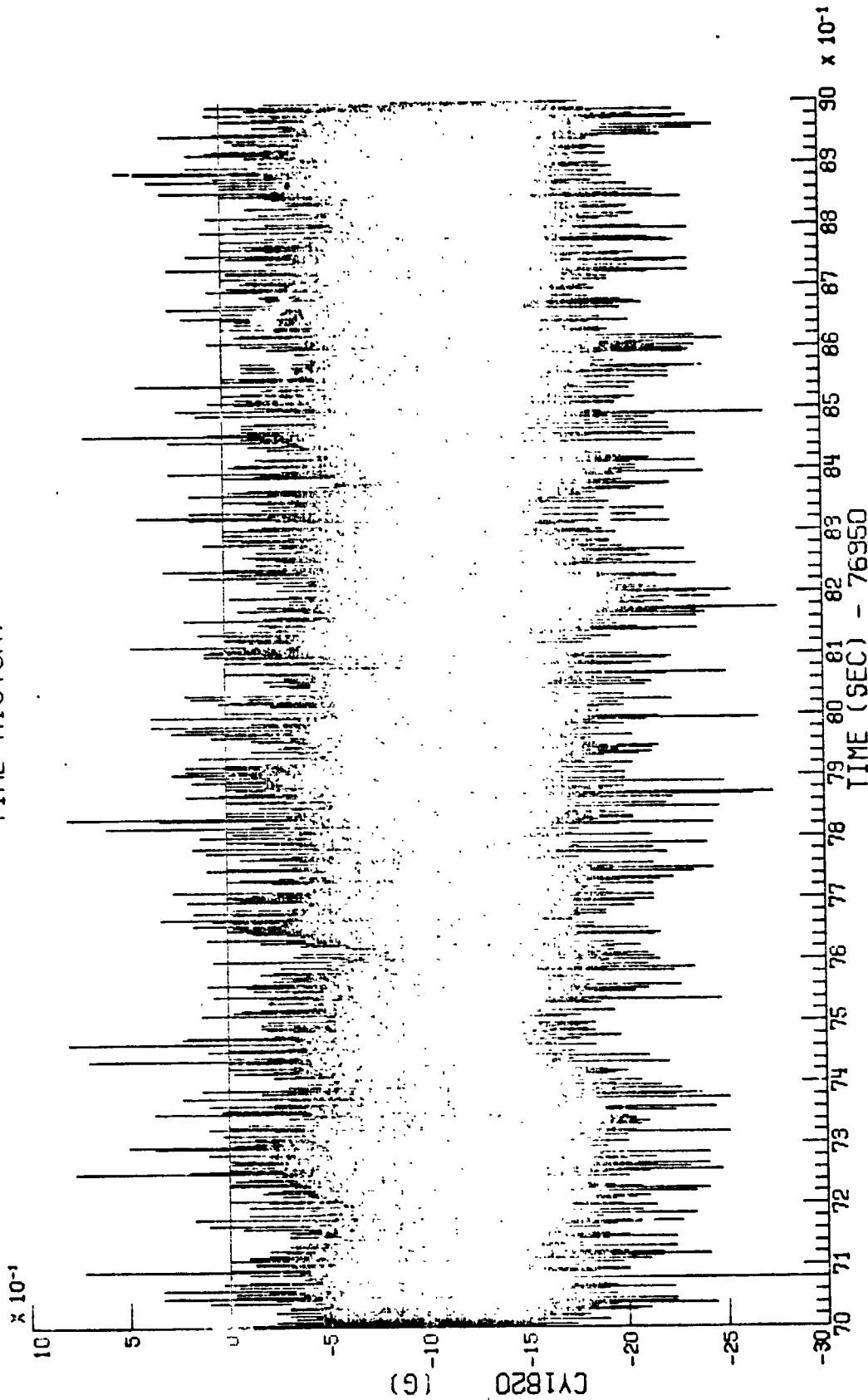
VIKING A FLT (CIF)

MAX Q

Z008

ORIGINAL PAGE IS
OF POOR QUALITY

TIME HISTORY



MAX = .801

MIN = -2.972

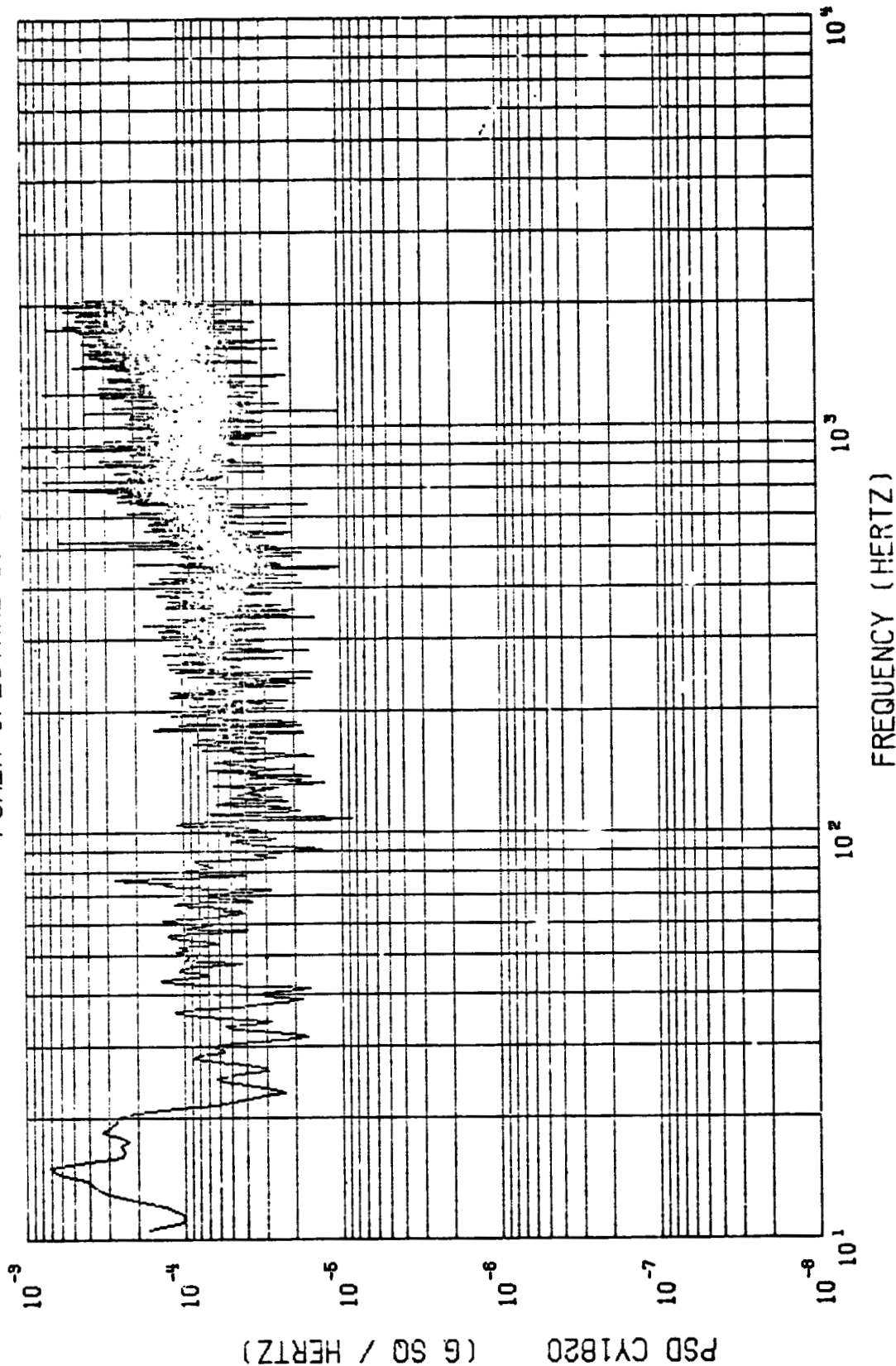
CY1820

MAX 0

VIKING A FLT (CIF)

Figure 3.47a

POWER SPECTRAL DENSITY



$\Delta F = .499$ START = 76957.000 SEC STOP = 76959.000 SEC
 MEAN = -10655×10^{-4} $\sigma^2 = 25656 \times 10^{-5}$ $\sigma = 50652 \times 10^{-3}$ $3\sigma = 15195 \times 10^{-3}$

CY1820

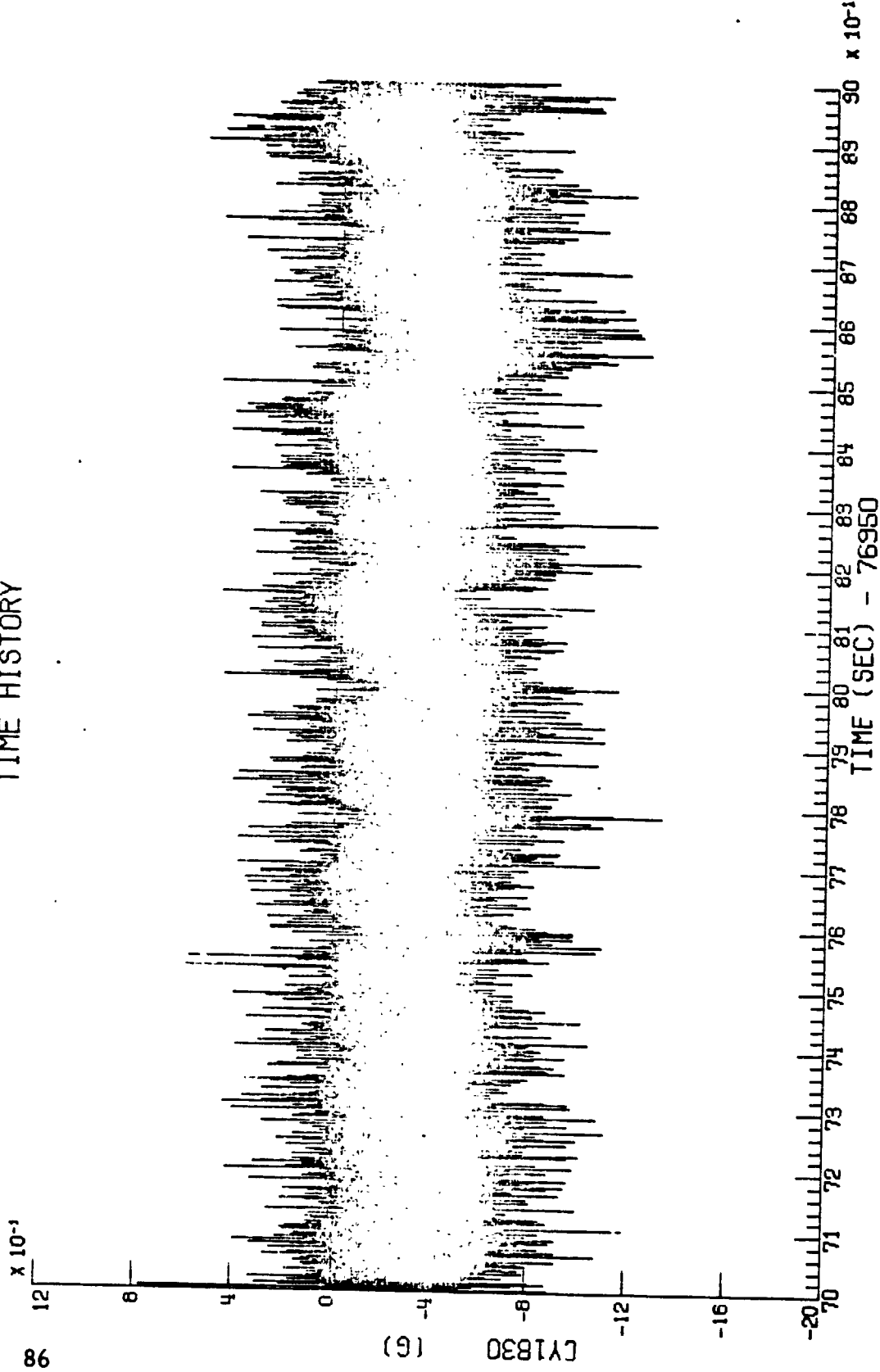
MAX Q

VIKING A FLT (CIF)

Figure 3.47b

ORIGINAL PAGE IS
OF POOR QUALITY

TIME HISTORY



MAX = .772

MIN = -1.331

VIKING A FLT (CIF)

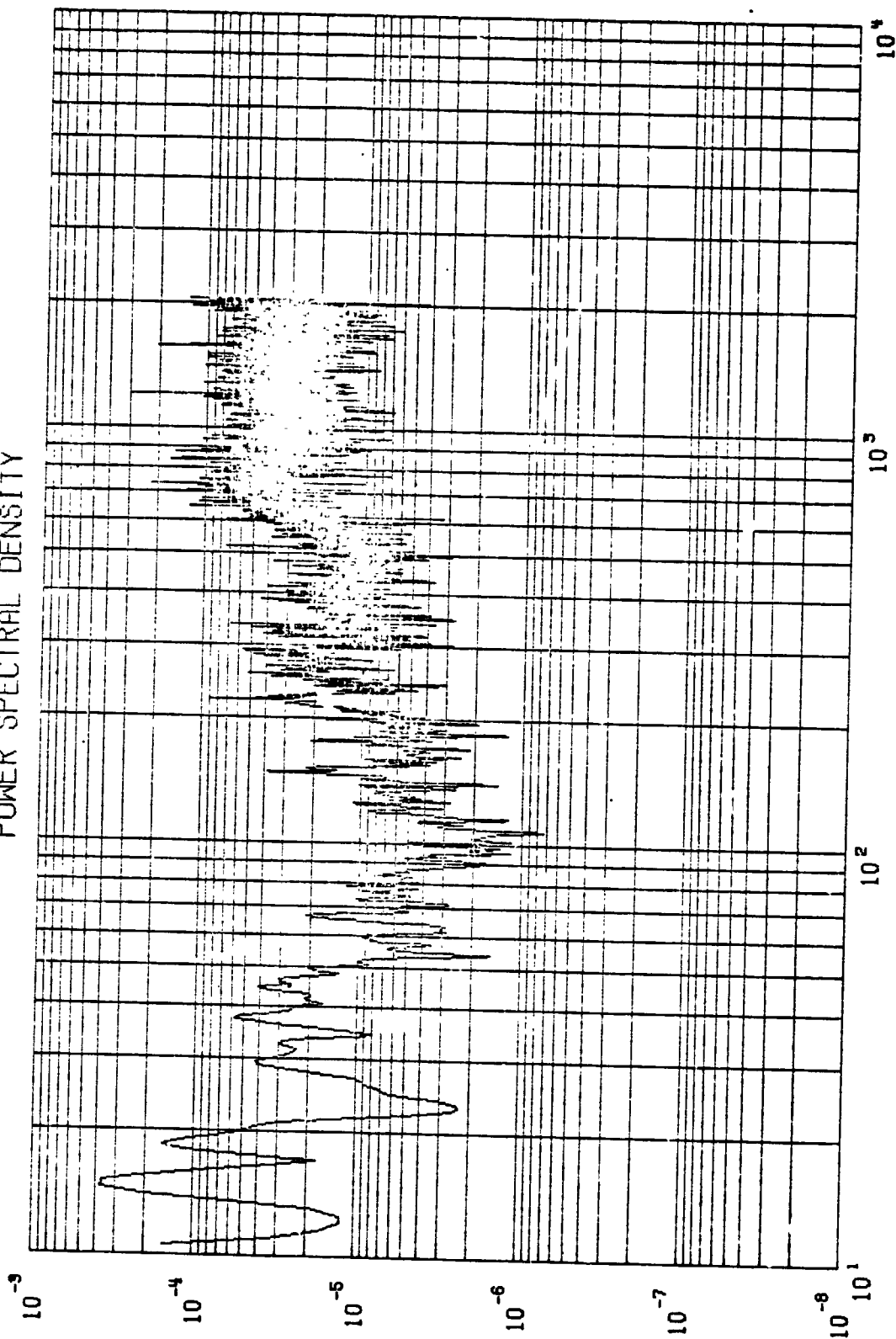
MAX Q

CY1830

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.48a

POWER SPECTRAL DENSITY



PSD CY1830 (G SQ / HERTZ)

FREQUENCY (HERTZ)

$\Delta F = .499$ START = 76957.000 SEC STOP = 76959.000 SEC
MEAN = -29196×10^{-5} $\sigma^2 = 71823 \times 10^{-5}$ $\sigma = 26799 \times 10^{-5}$ $3\sigma = 80399 \times 10^{-5}$

VIKING A FLT (CIF)

MAX C

CY1830

Figure 3.48b

NAFSL-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

TIME HISTORY

88 x 10⁻¹

22

18

14

10

6

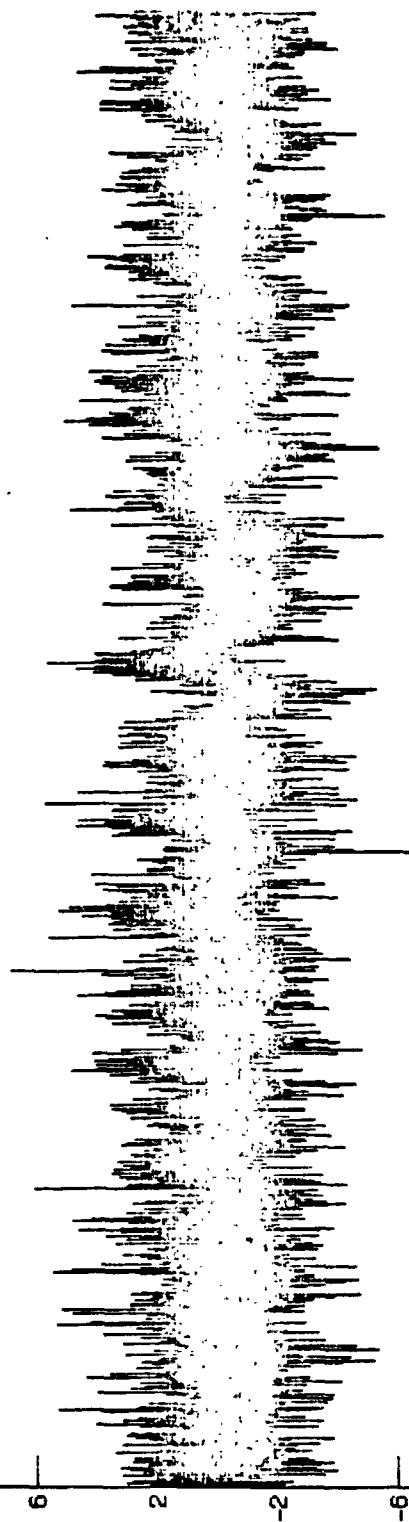
2

-2

-6

(C) CY1840

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR



70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 x 10⁻¹
TIME (SEC) - 76950

MIN = -.655

MAX = .683

CY1840

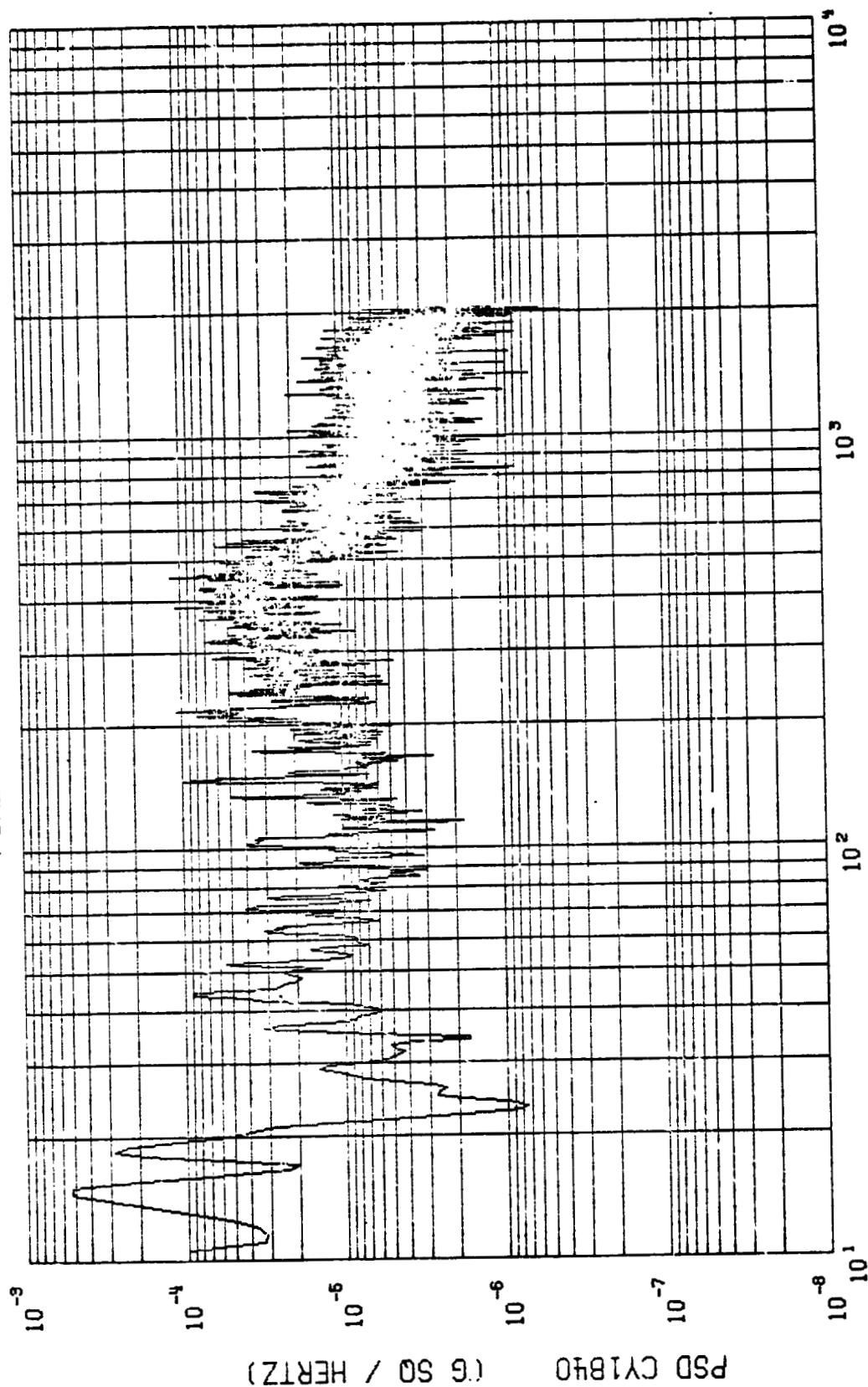
MAX Q

VJIKING A FLT (CIF)

Figure 3.49a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

POWER SPECTRAL DENSITY



$\Delta F = .499$

MEAN = -11474×10^{-8}

$\sigma^2 = 2596 \times 10^{-8}$

$\sigma = 16109 \times 10^{-8}$

START = 76957.000 SEC

STOP = 76959.000 SEC

$3\sigma = 48327 \times 10^{-8}$

VIKING A FLT (CIF)

MAX Q

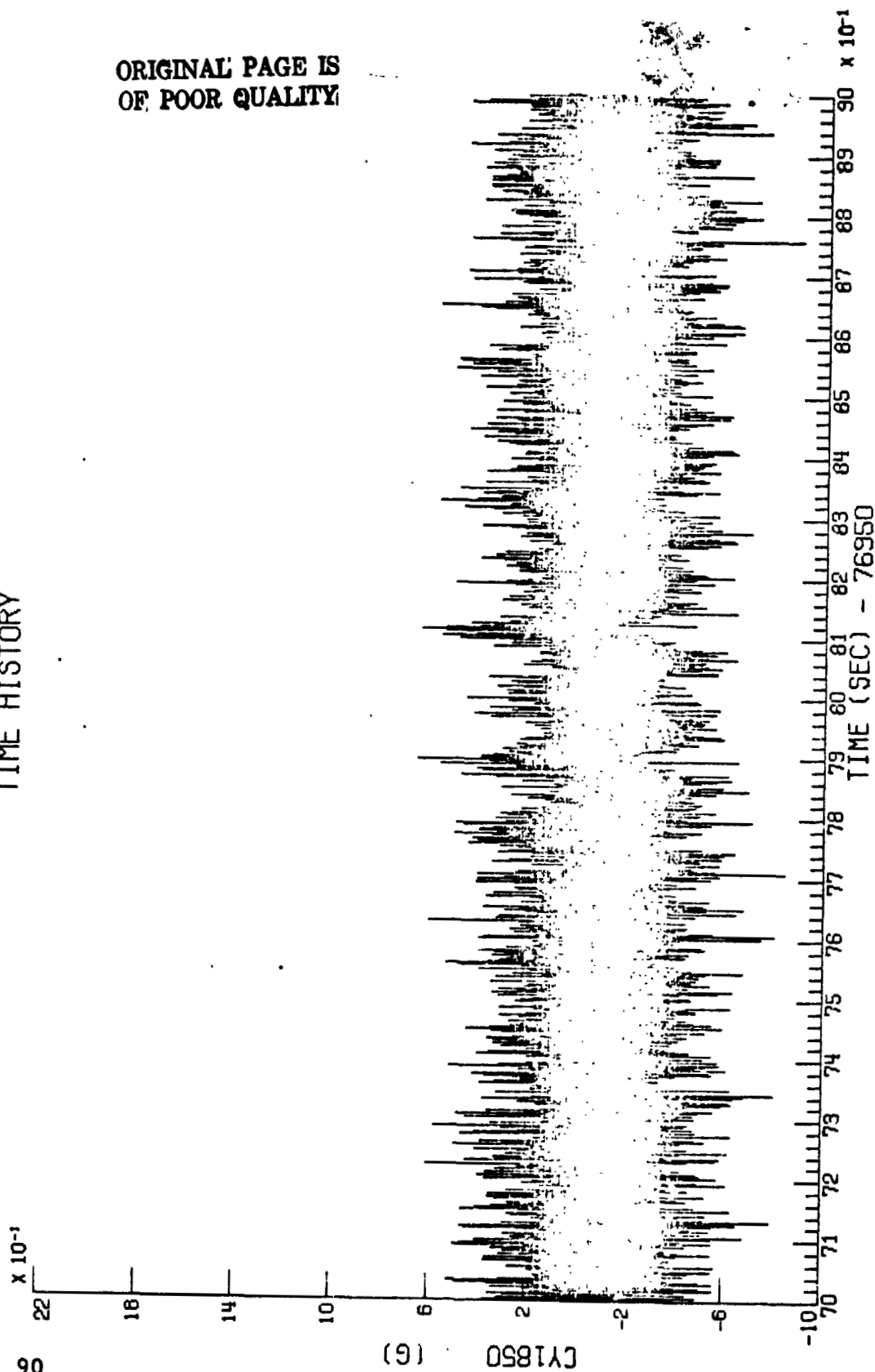
CY1840

Figure 3.49b

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

TIME HISTORY

06 $\times 10^{-1}$



ORIGINAL PAGE IS
OF POOR QUALITY

MAX = .655

MIN = -.889

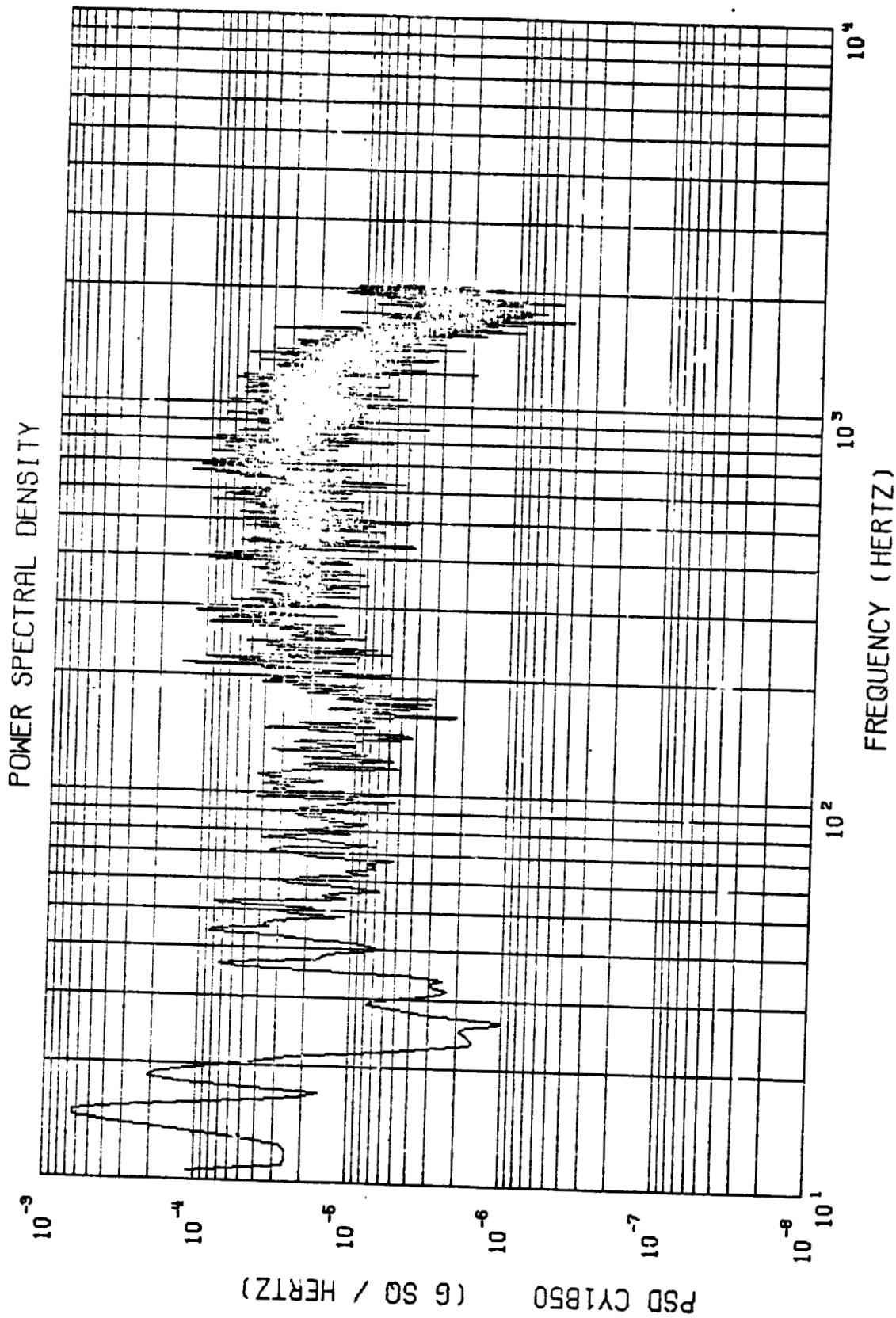
VIKING A FLT (CIF)

MAX Q

CY1850

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.50a



$\Delta F = .499$

START = '6957.000 SEC

STOP = 76959.000 SEC

MEAN = -93674×10^{-5}

$\sigma^2 = 45899 \times 10^{-5}$

$\sigma = 21424 \times 10^{-5}$

$3\sigma = 64272 \times 10^{-5}$

VIKING A FLT (CIF)

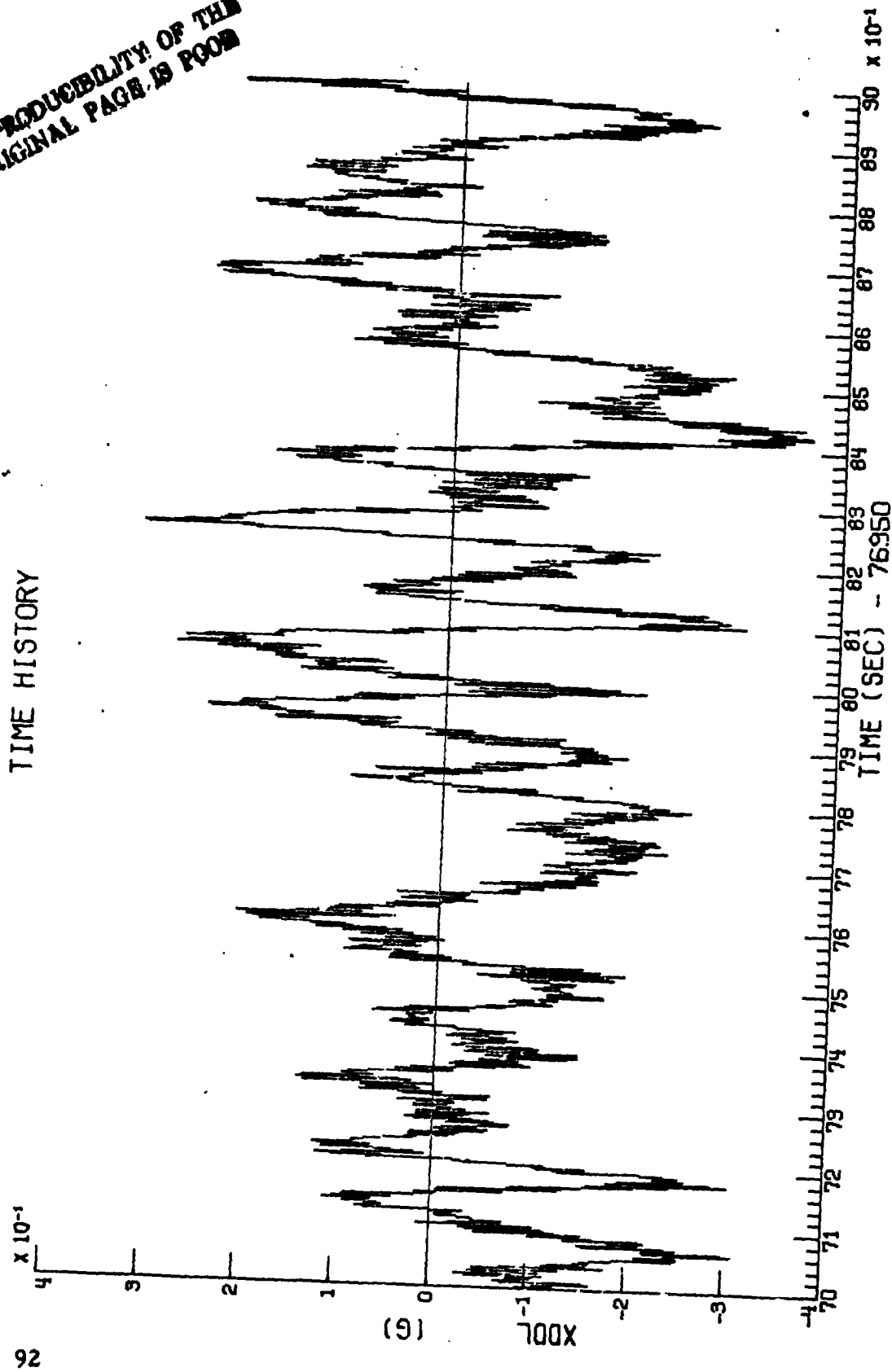
MAX Q

CY1850

NP58-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.50b

REPRODUCIBILITY OF THE
ORIGINAL PAGE IS POOR



MAX = .313

MIN = -.366

VIKING A FLT (CIF)

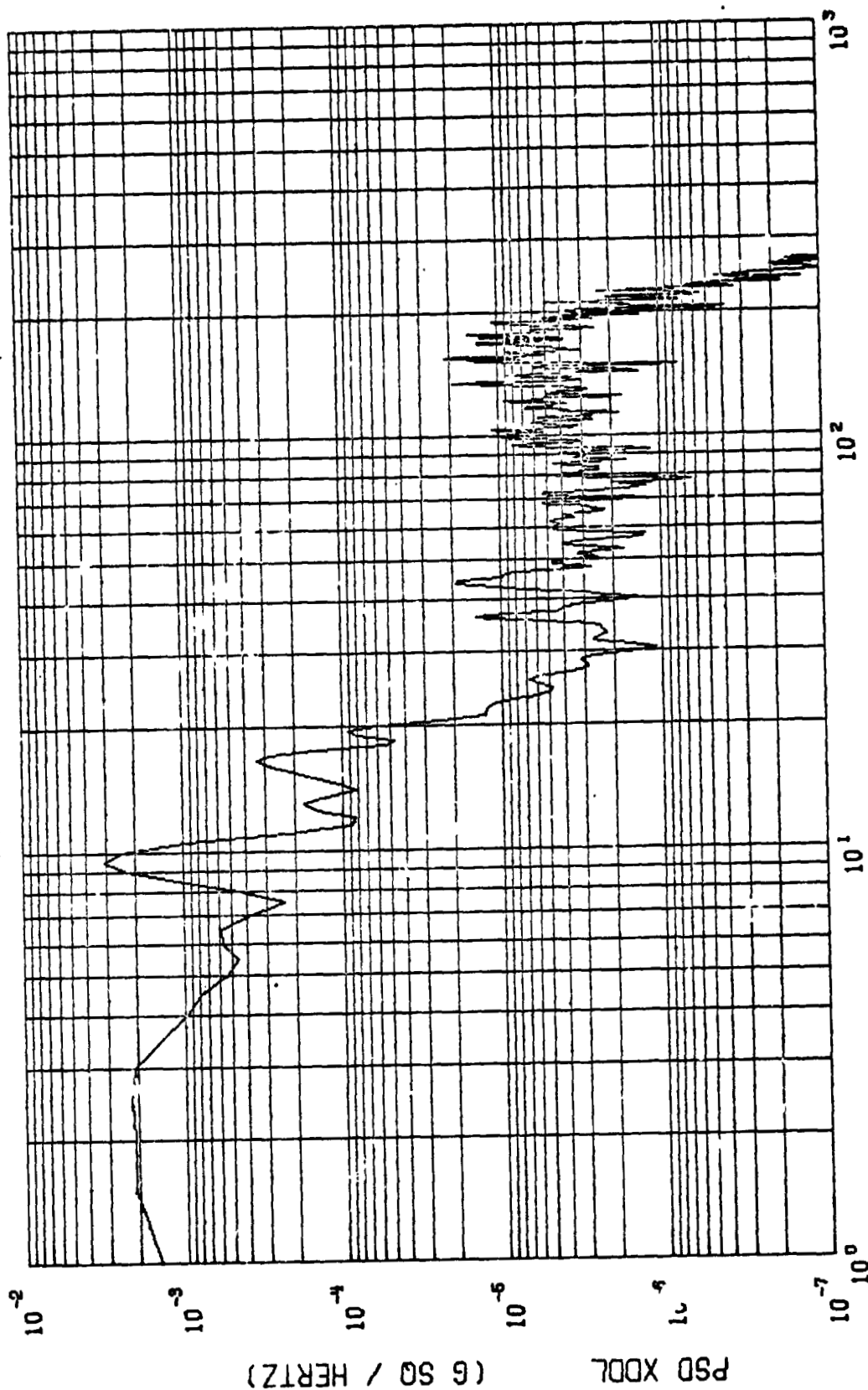
MAX Q

XDDL

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.51a

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .500$
 $\text{START} = 76957.000 \text{ SEC}$
 $\text{STOP} = 76959.000 \text{ SEC}$
 $\text{MEAN} = -34975 \times 10^{-8}$
 $\sigma^2 = 16732 \times 10^{-8}$
 $\sigma = 12542 \times 10^{-5}$
 $3\sigma = 37628 \times 10^{-5}$

XDDL

MAX Q

VIKING A FLT (CIF)

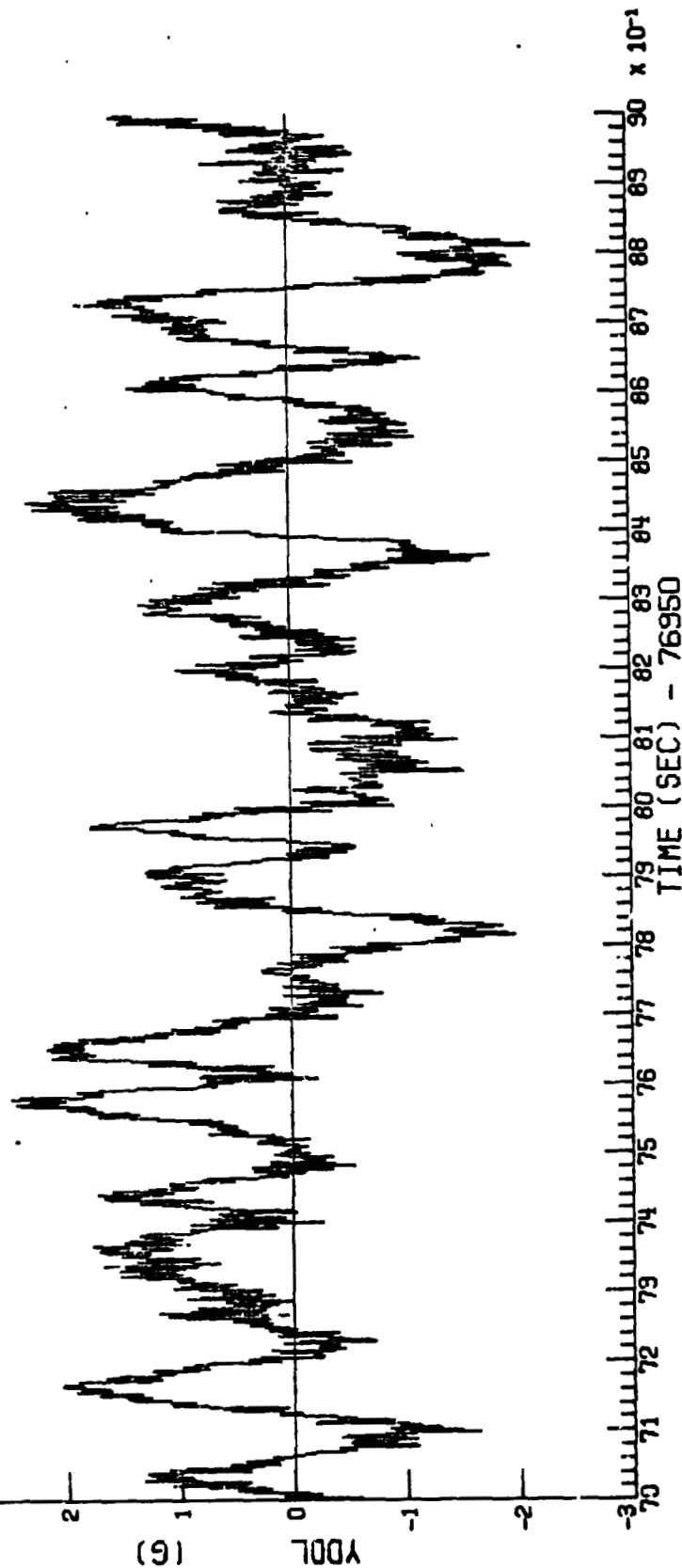
Figure 3.51b

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

TIME HISTORY

$\times 10^{-1}$

94



MIN = -.215

MAX = .249

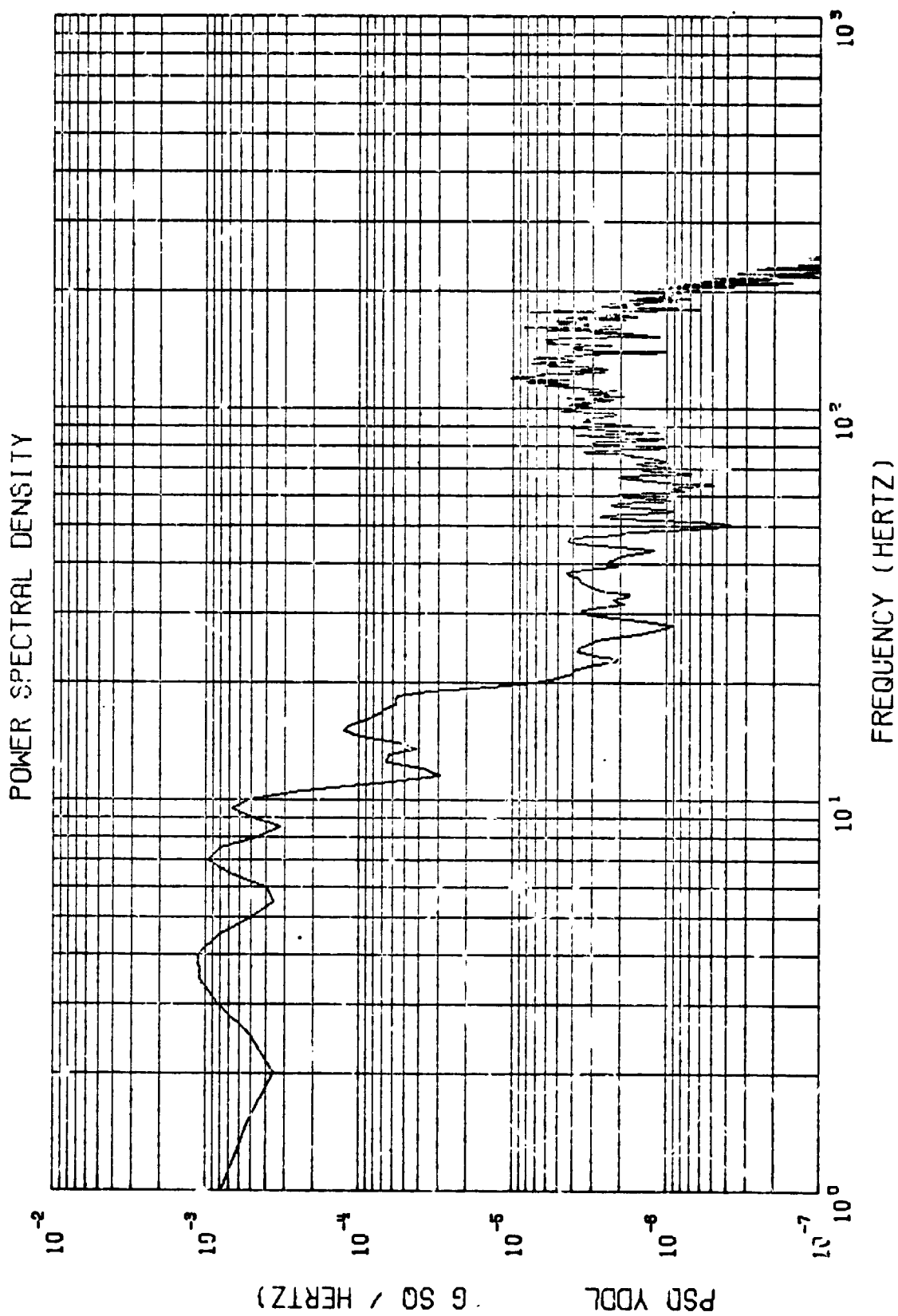
YDDL

MAX 0

VIKING A FLT (CIF)

Figure 3.52a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75



$\Delta F = .500$
 $\text{MEAN} = 21618 \times 10^{-5}$
 $\sigma^2 = 79531 \times 10^{-7}$

$\text{STAR} = 76957.000 \text{ SEC}$
 $\sigma = 8918 \times 10^{-5}$

$\text{STOP} = 76959.000 \text{ SEC}$
 $3\sigma = 26754 \times 10^{-5}$

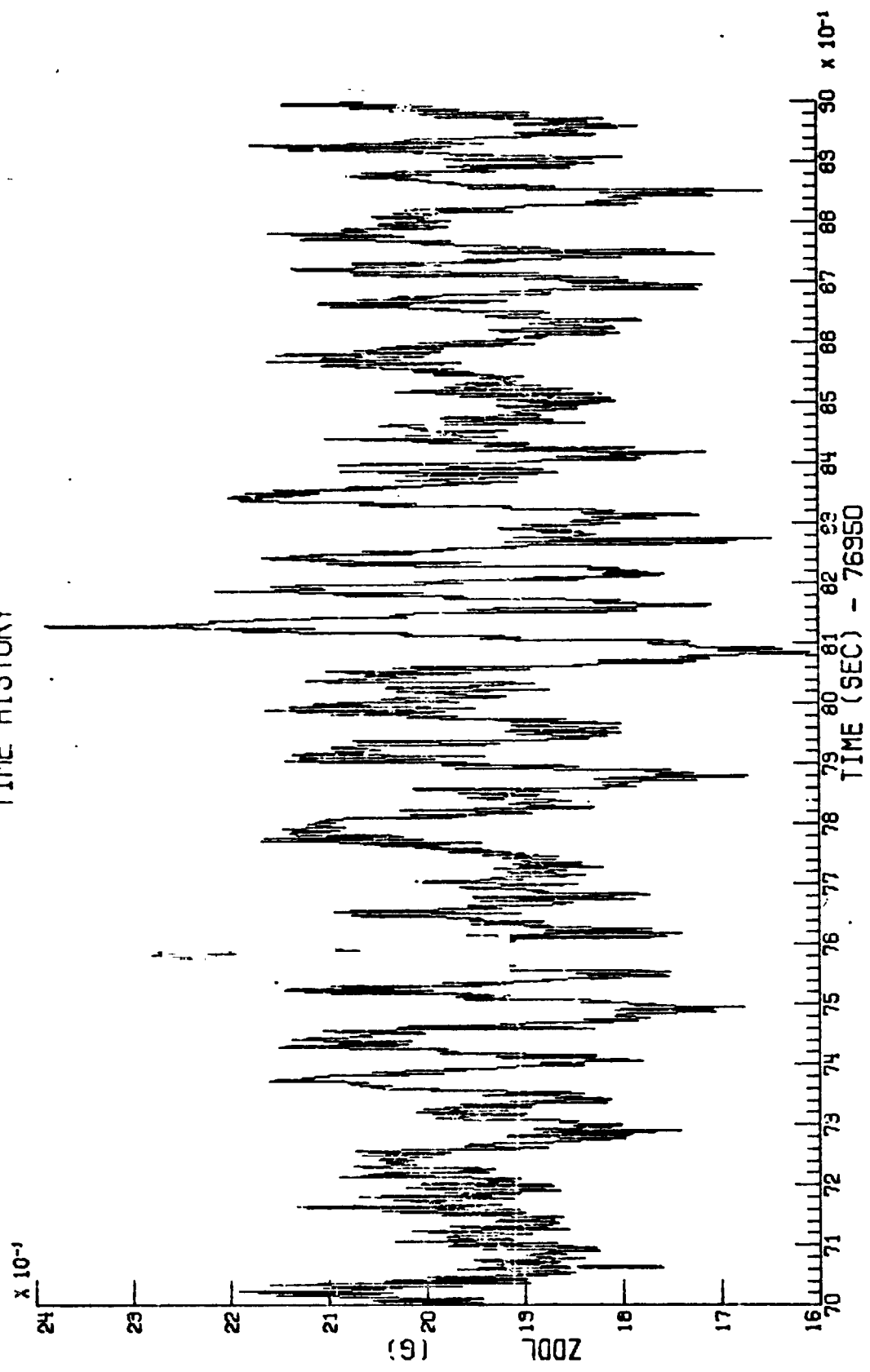
VIKING A FLT (CIF)

MAX Q

YDDL

C-2

TIME HISTORY



MAX = 2.389

MIN = 1.609

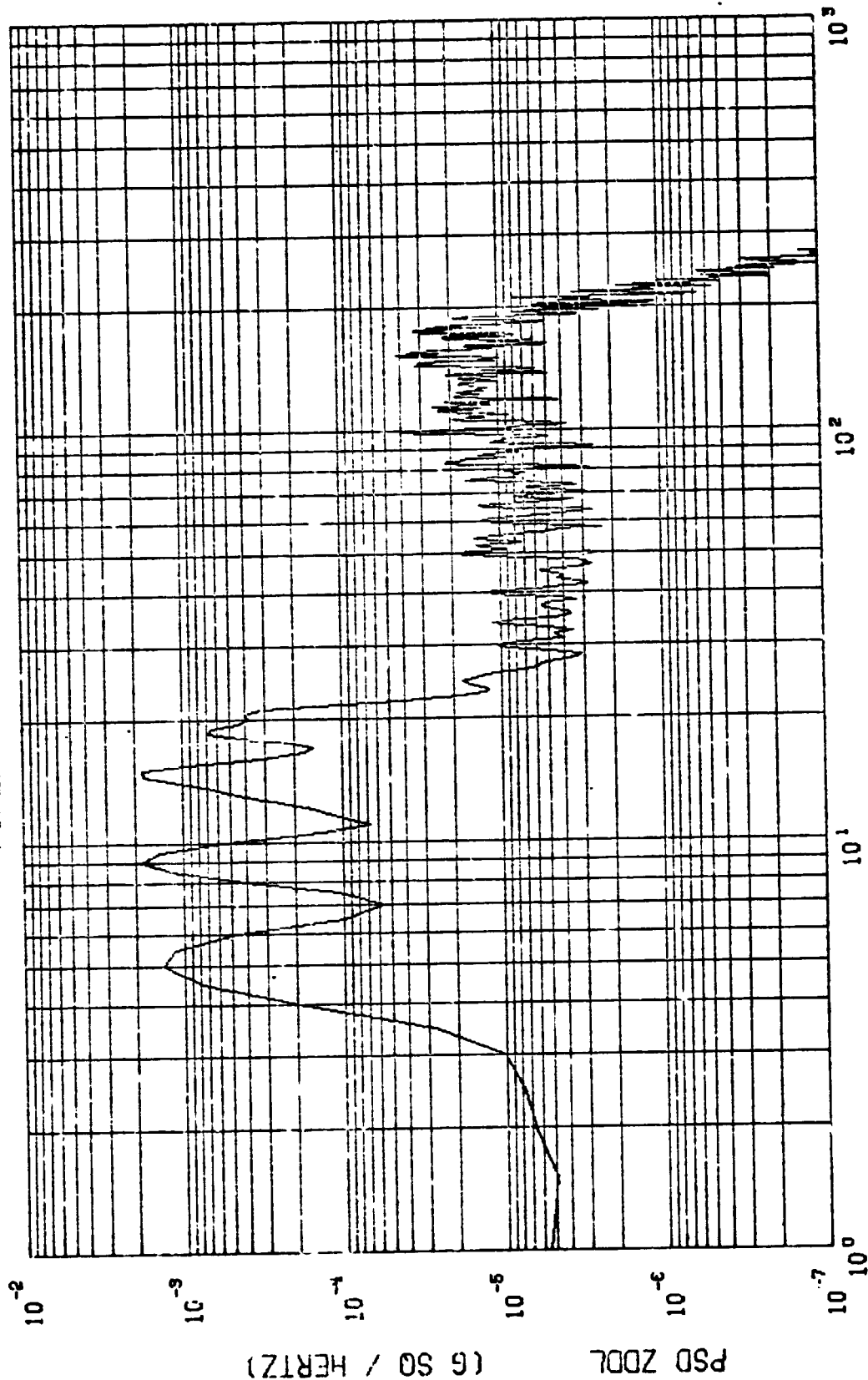
VIKING A FLT (CIF)

MAX Q

Z00L

Figure 3.53a

POWER SPECTRAL DENSITY

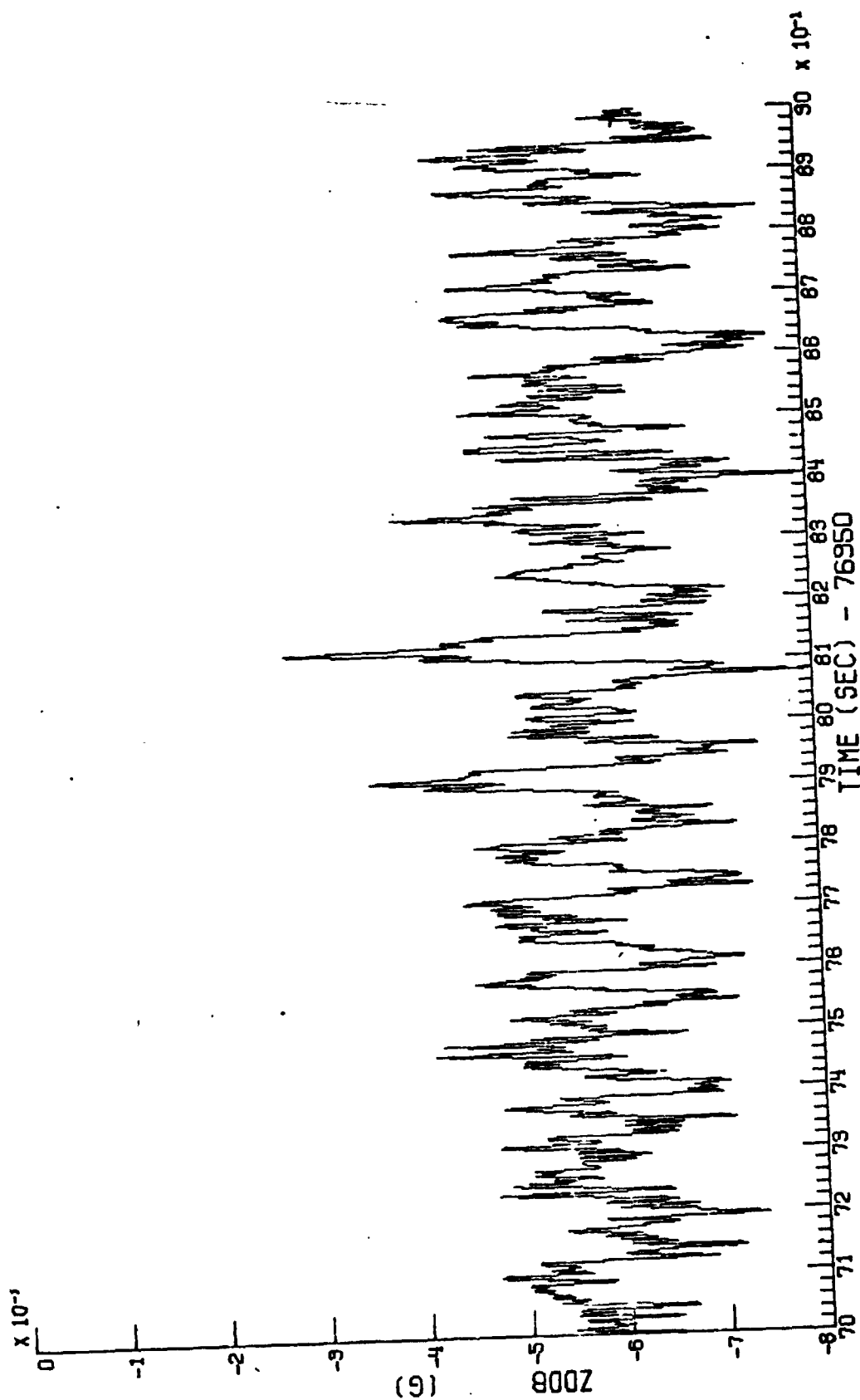


$\Delta F = .500$ START = 76957.000 SEC STOP = 76959.000 SEC
 MEAN = 19444×10^{-4} $\sigma^2 = 12818 \times 10^{-6}$ $\sigma = 11321 \times 10^{-3}$ $3\sigma = 33965 \times 10^{-6}$

VIKING A FLT (CIF) MAX Q ZDDL

Figure 3.53b

TIME HISTORY



MIN = -.795

MAX = -.273

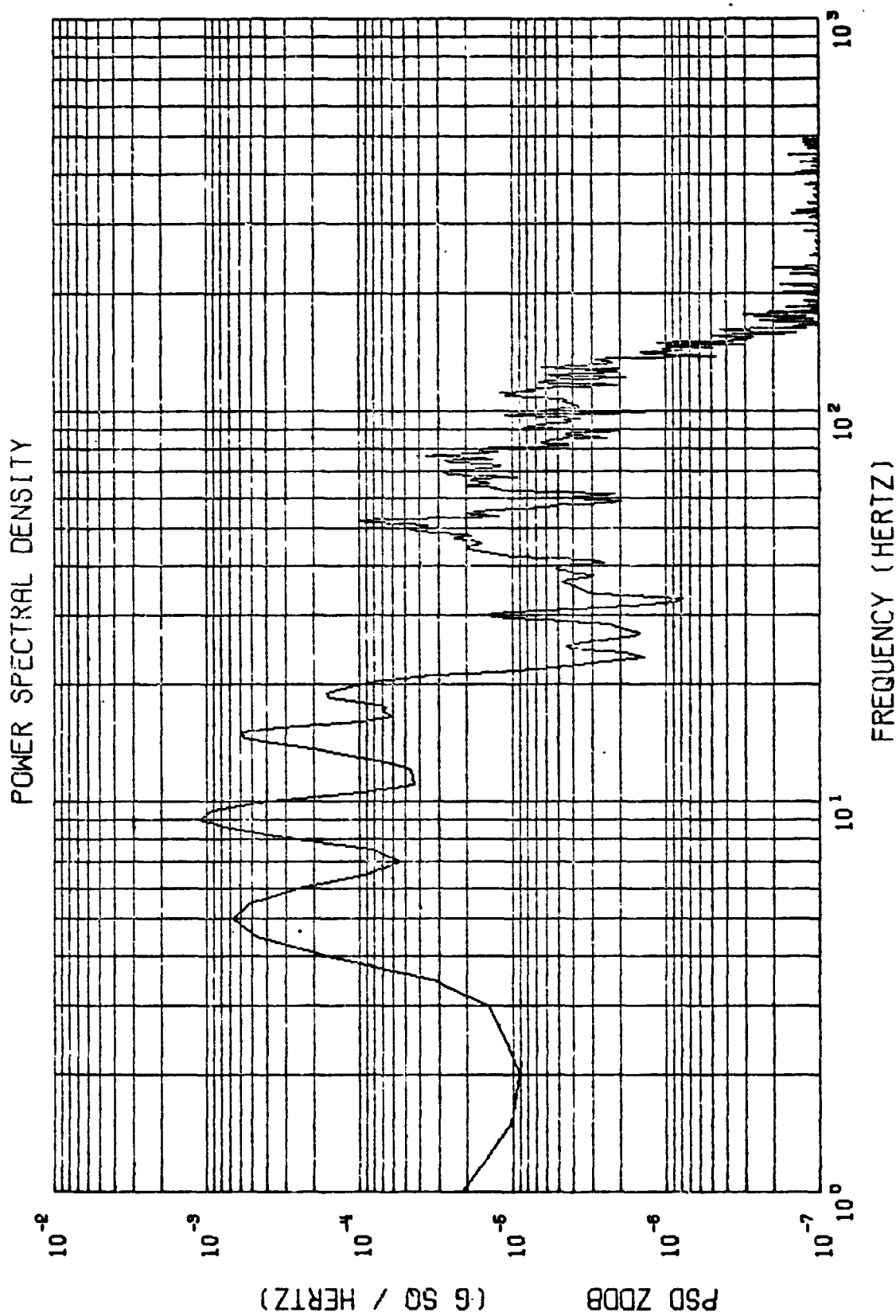
Z008

MAX Q

VIKING A FLT (CIF)

Figure 3.54a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

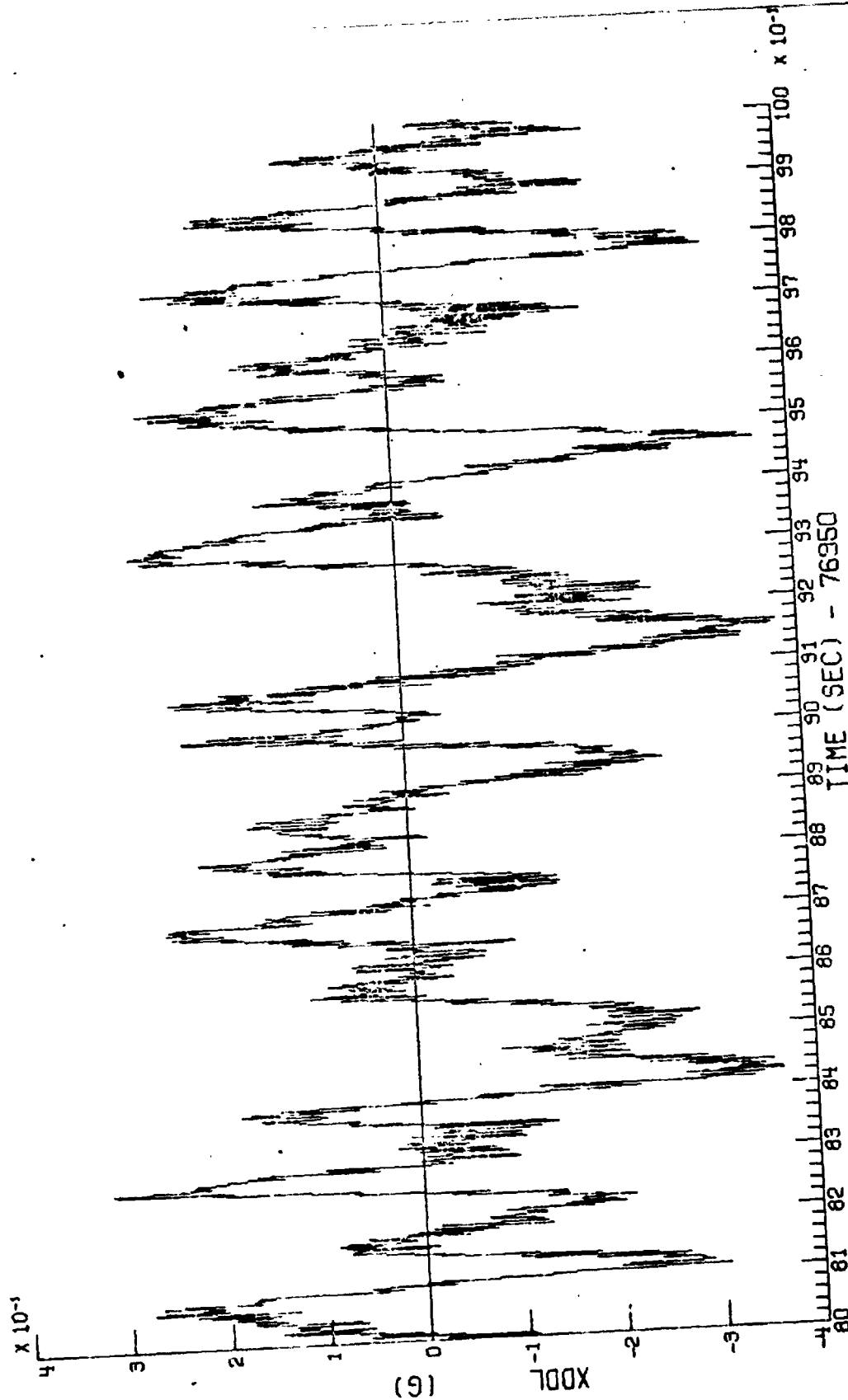


$\Delta F = .500$
 $\text{START} = 76957.000 \text{ SEC}$
 $\text{STOP} = 76959.000 \text{ SEC}$
 $\text{MEAN} = -58124 \times 10^{-5}$
 $\sigma^2 = 57879 \times 10^{-7}$
 $\sigma = 76078 \times 10^{-5}$
 $3\sigma = 22823 \times 10^{-5}$

VIKING A FLT (CIF) MAX Q ZDOB

Figure 3.54b

TIME HISTORY



MIN = -.377

MAX = .313

XDDL

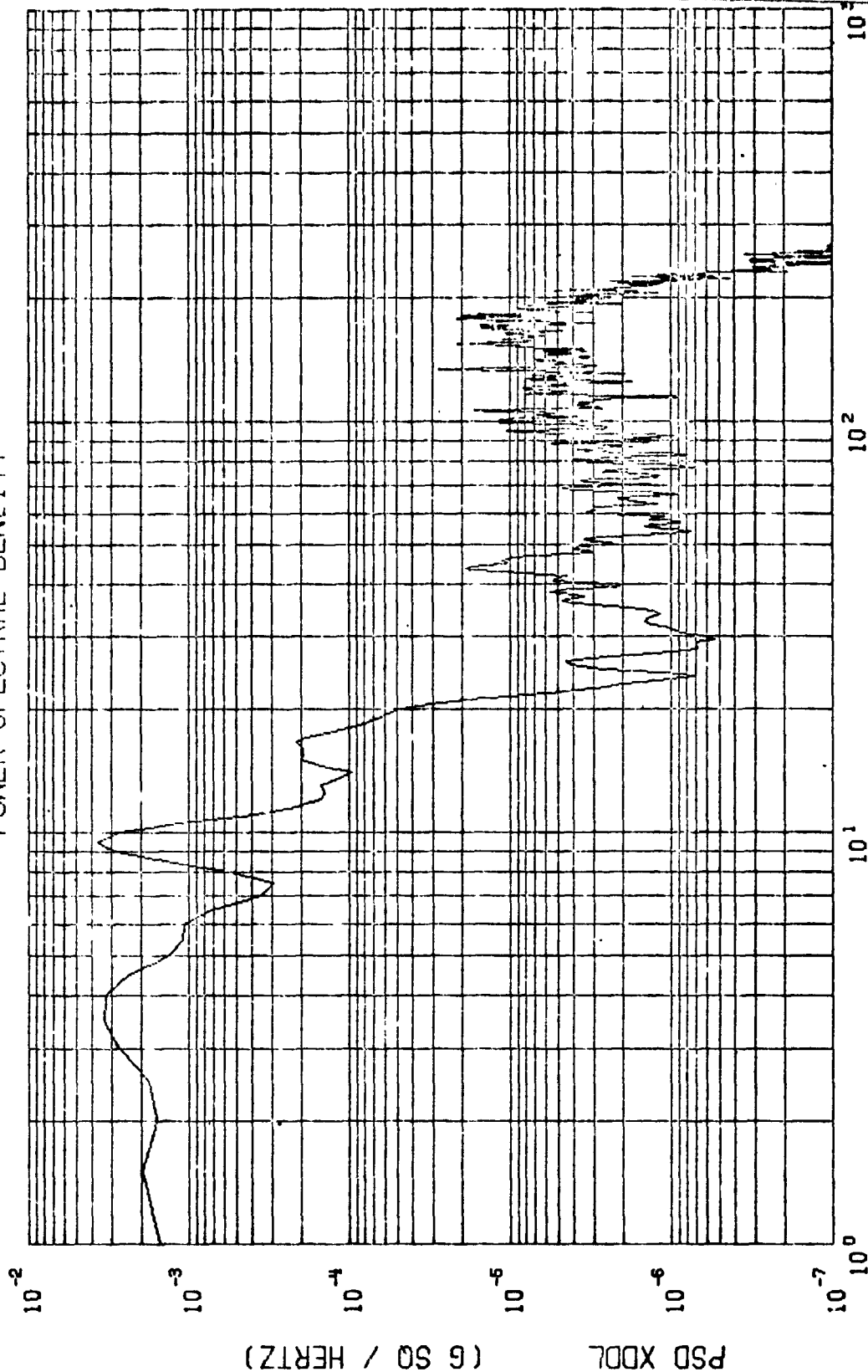
MAX Q

VIKING A FLT (CIF)

Figure 3.55a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

POWER SPECTRAL DENSITY



$\Delta F = .500$

START = 76958.000 SEC

STOP = 76959.999 SEC

MEAN = -25119×10^{-6}

$\sigma^2 = 20736 \times 10^{-6}$

$\sigma = 144 \times 10^{-3}$

$3\sigma = 43201 \times 10^{-3}$

VIKING A FLT (CIF)

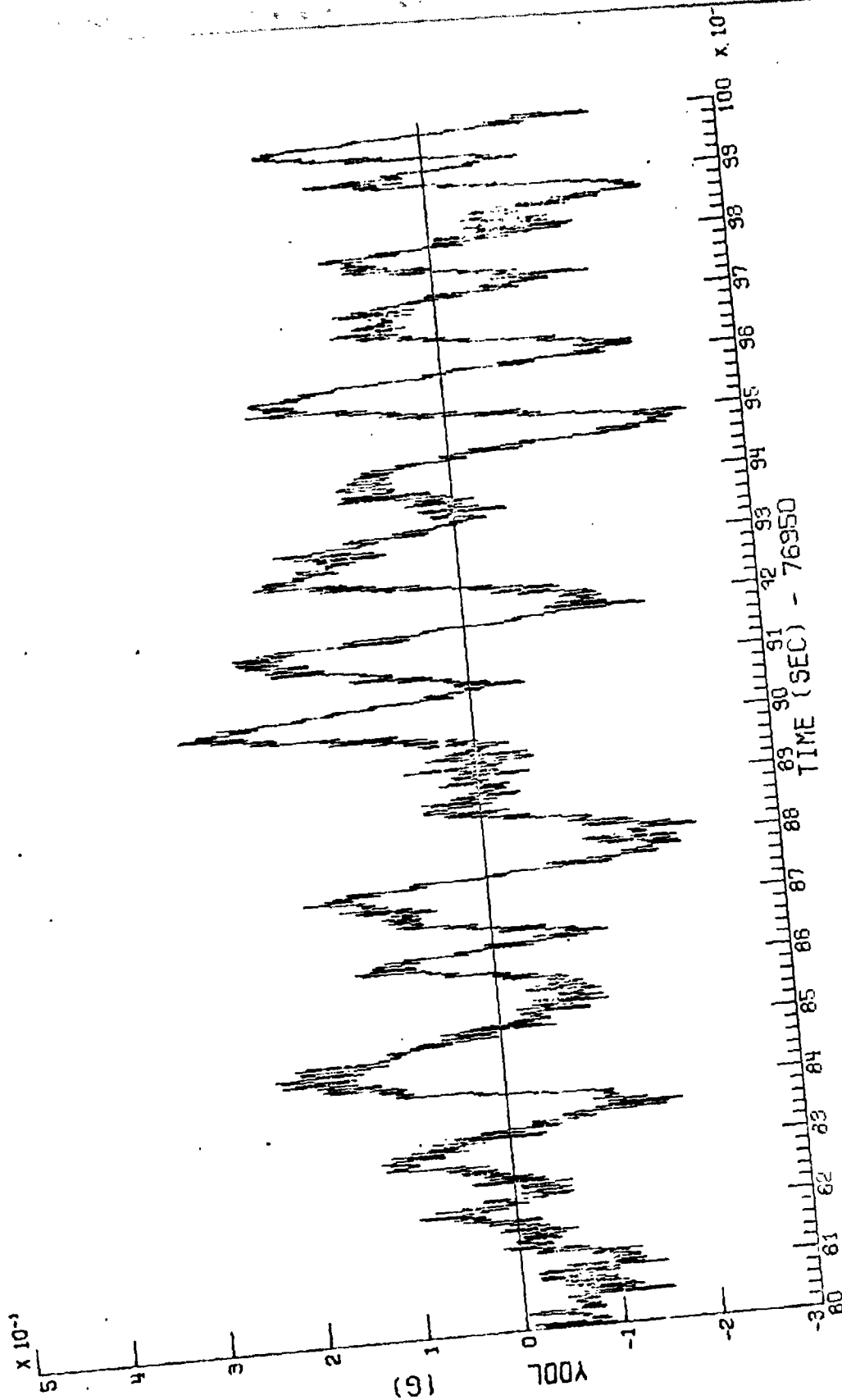
MAX Q

XDDL

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

Figure 3.55b

TIME HISTORY



MIN = -.242

MAX = .299

YDDL

MAX 0

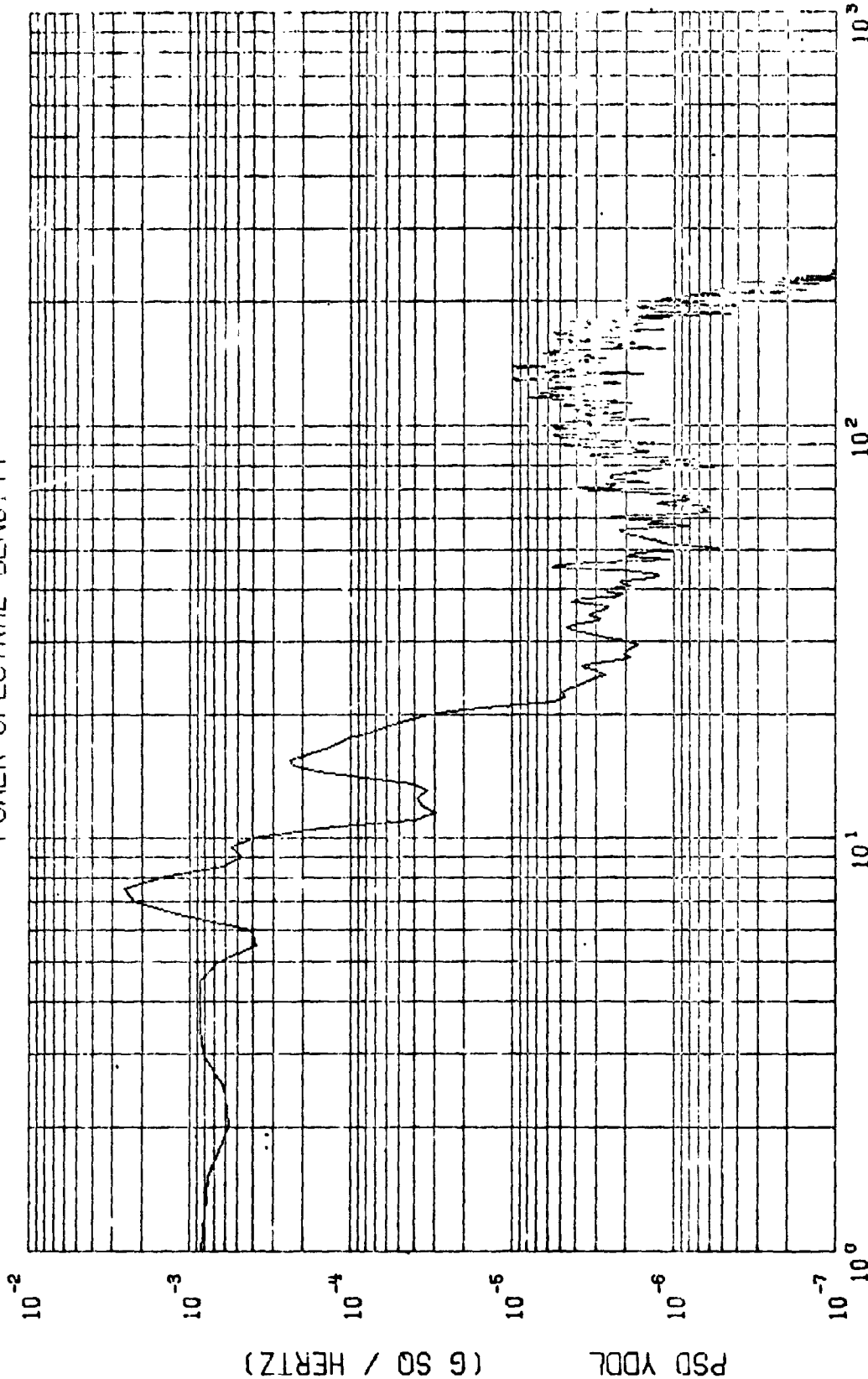
Figure 3.56a

VIKING R FLT (CIF)

08/22/75

NPSA-LANGLEY SIGNAL ANALYSIS PROGRAM

POWER SPECTRAL DENSITY



START = 76958.000 SEC STOP = 76959.999 SEC

$\Delta F = .500$

MEAN = 82161×10^{-7}

$\sigma^2 = 10473 \times 10^{-6}$

$\sigma = 10233 \times 10^{-3}$

$3\sigma = 30701 \times 10^{-5}$

VIKING A FLT (CIF)

MAX 0

YDDL

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

Figure 3.56b

TIME HISTORY

$\times 10^{-1}$

104

24

23

22

21

(9)

700Z

18

17

16

80

81

82

83

84

85

86

87

88

89

90

91

92

93

94

95

96

97

98

99

100

$\times 10^{-1}$

100

99

98

97

96

95

94

93

92

91

90

89

88

87

86

85

84

83

82

81

80

TIME (SEC) - 76950

MAX = 2.369

MIN = 1.609

VIKING A FLT (CIF)

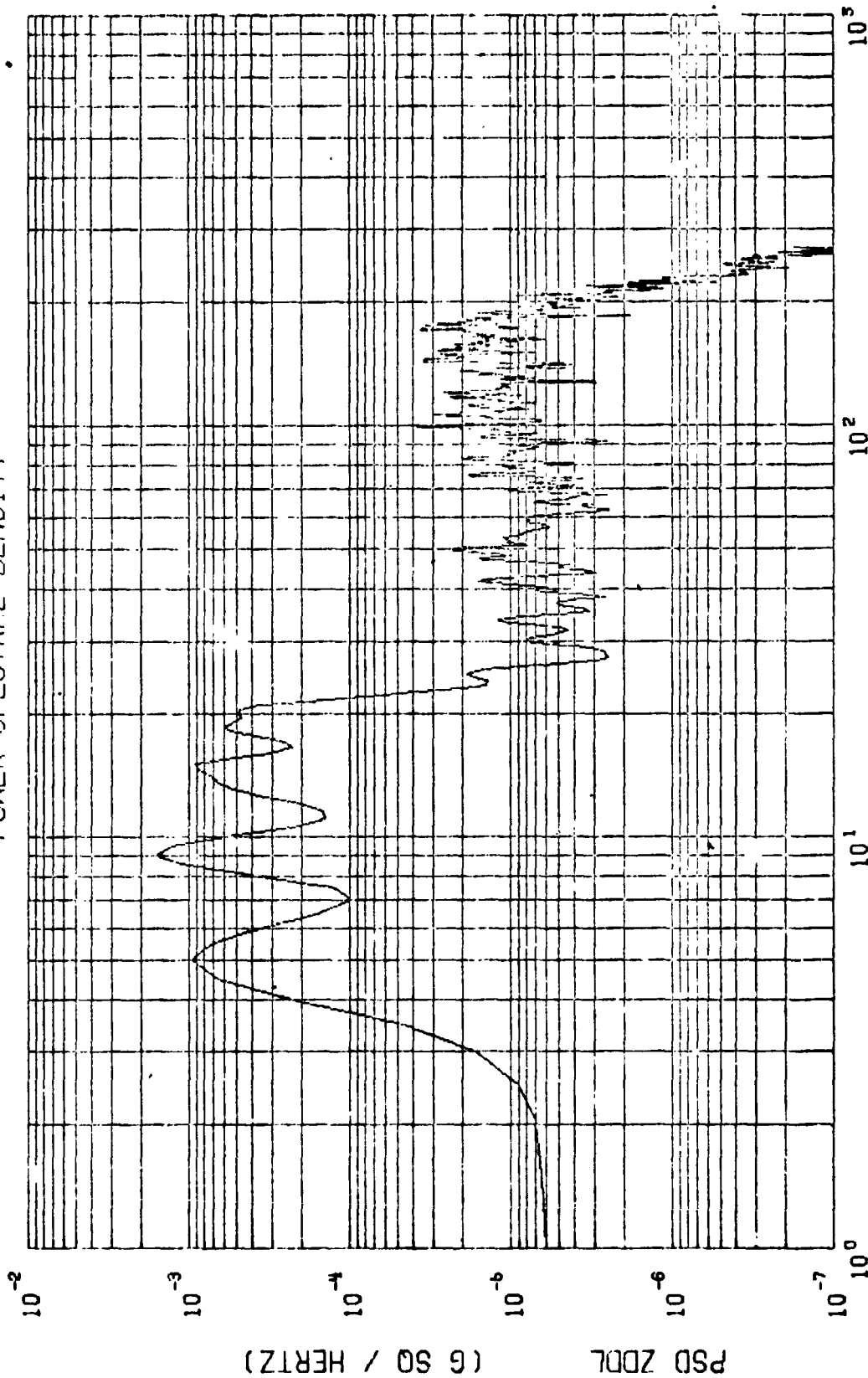
MAX 0

Z00L

PARA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

Figure 3.57a

POWER SPECTRAL DENSITY



$\Delta F = .500$

START = 76958.000 SEC

STOP = 76959.993 SEC

MEAN = 19421×10^{-6}

$\sigma^2 = 11362 \times 10^{-6}$

$\sigma = 10659 \times 10^{-5}$

$3\sigma = 31978 \times 10^{-5}$

VIKING A FLT (C/F)

MAX 0

ZDDL

Figure 3.57b

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

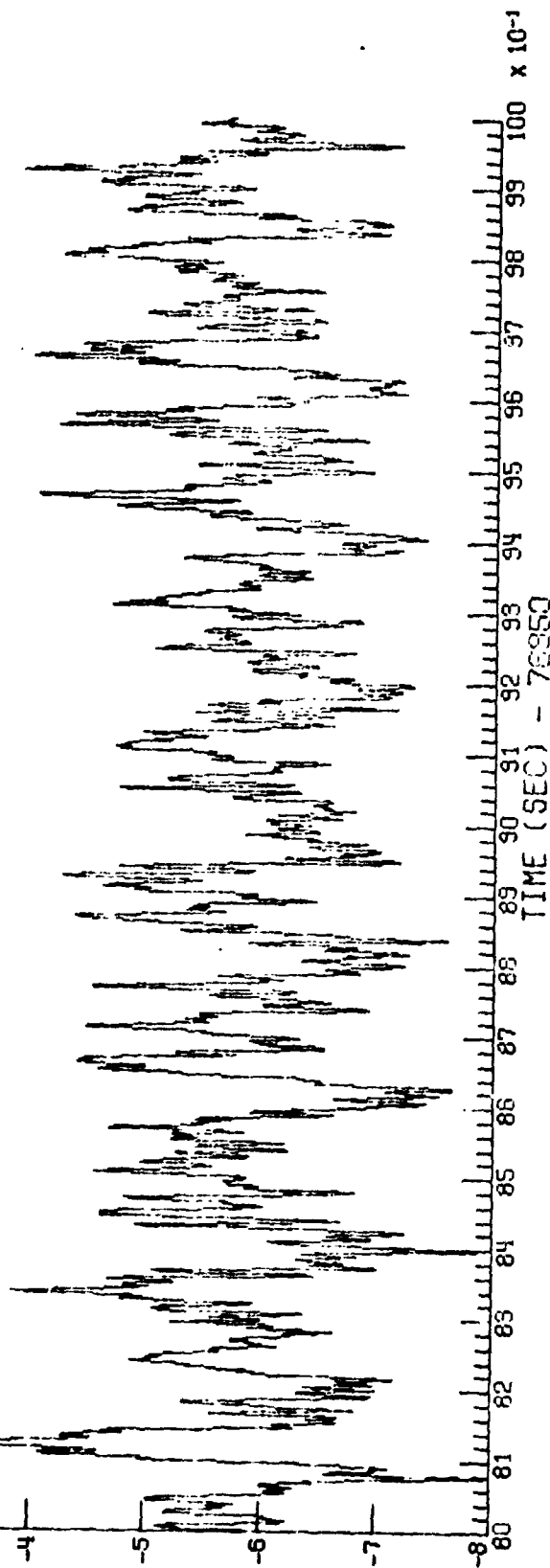
TIME HISTORY

$\times 10^{-1}$

106

(G)

Z008



MAX = -.2

MIN = -.795

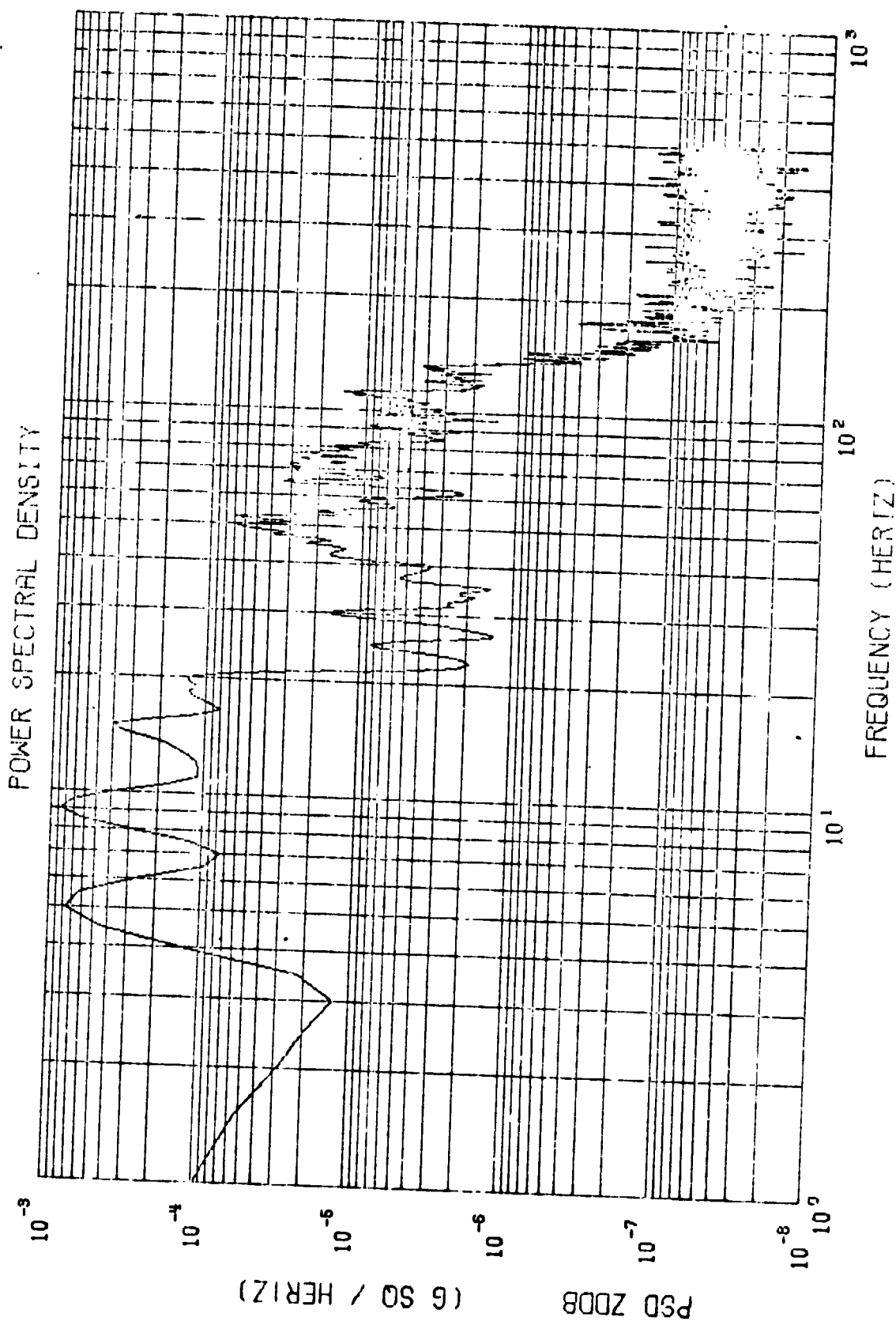
VIKING A FLT (CIF)

MAX Q

Z008

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/22/75

Figure 5.5a



$\Delta F = .500$

START = 76958.000 SEC

STOP = 76959.500 SEC

MEAN = -58394×10^{-5}

$\sigma^2 = 57744 \times 10^{-7}$

$\sigma = 75989 \times 10^{-6}$

$Sd = 20705 \times 10^{-5}$

VIKING A FLT (CIF)

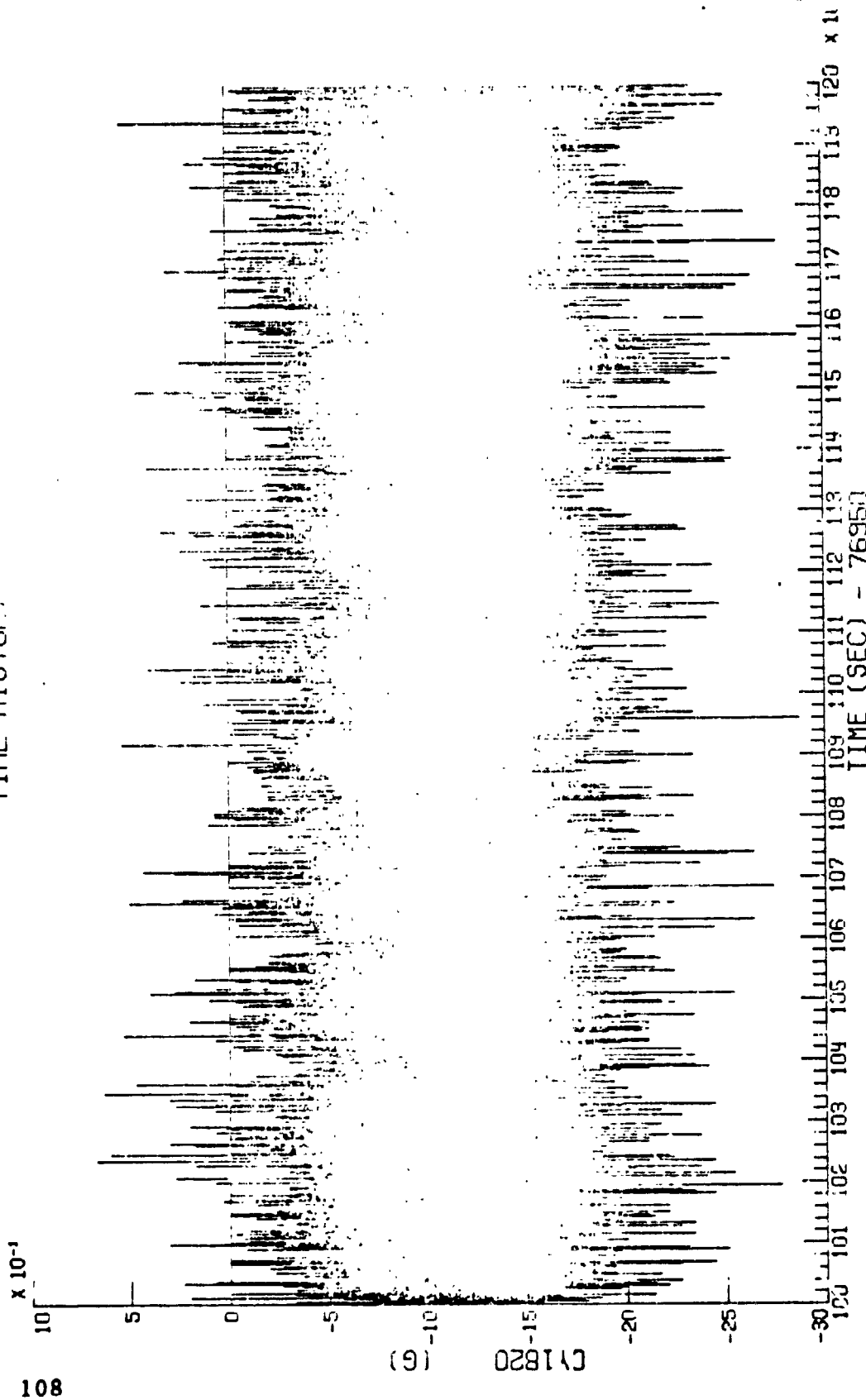
MAX 0

Z008

NSA-LANSLEY SIGNAL ANALYSIS PROGRAM 08/22/75

Figure 3.58b

TIME HISTORY



MAX = .667

MIN = -2.872

VIKING A FLT (CIF)

CY1820

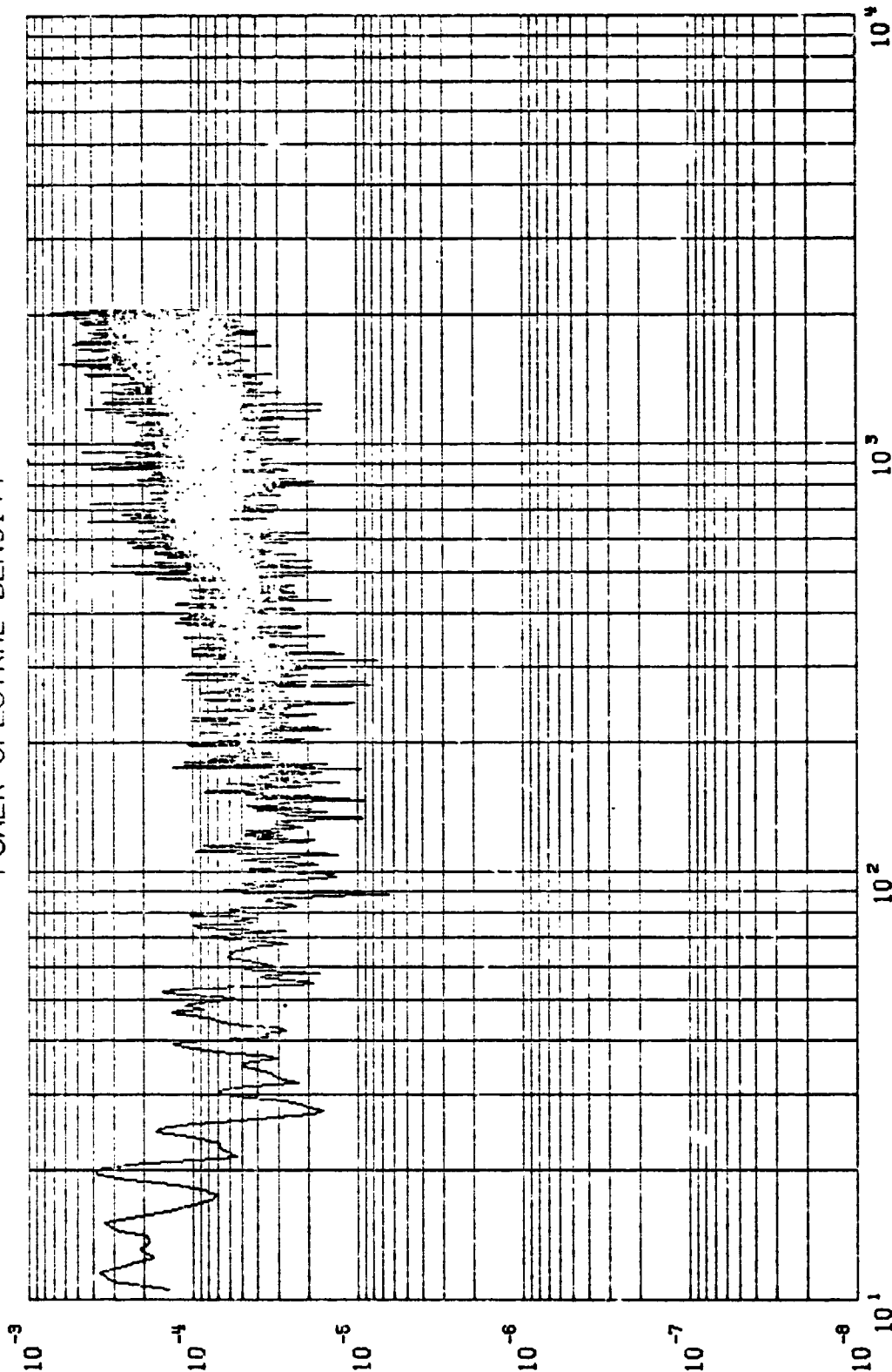
MAX 0

Figure 3.59a

NASA LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

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OF POOR QUALITY

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .499$ START = 76960.000 SEC STOP = 76962.000 SEC

MEAN = -10743×10^{-4} $\sigma^2 = 24251 \times 10^{-5}$ $\sigma = 49245 \times 10^{-3}$ $3\sigma = 14773 \times 10^{-3}$

VIKING A FLT (CIF)

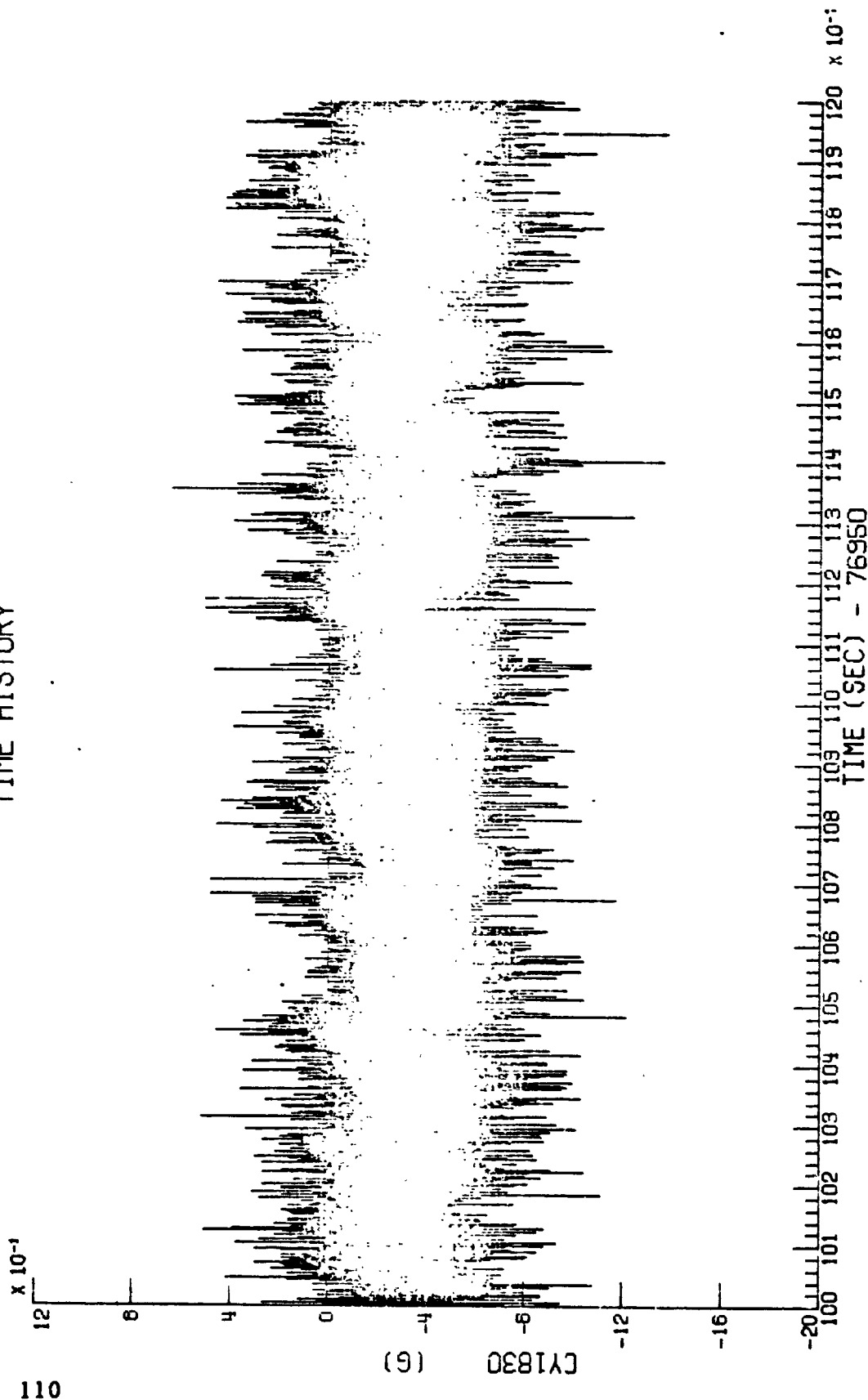
MAX Q

CY1820

Figure 3.59b

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

TIME HISTORY



MAX = .638

MIN = -1.371

VIKING A FLT (CIF)

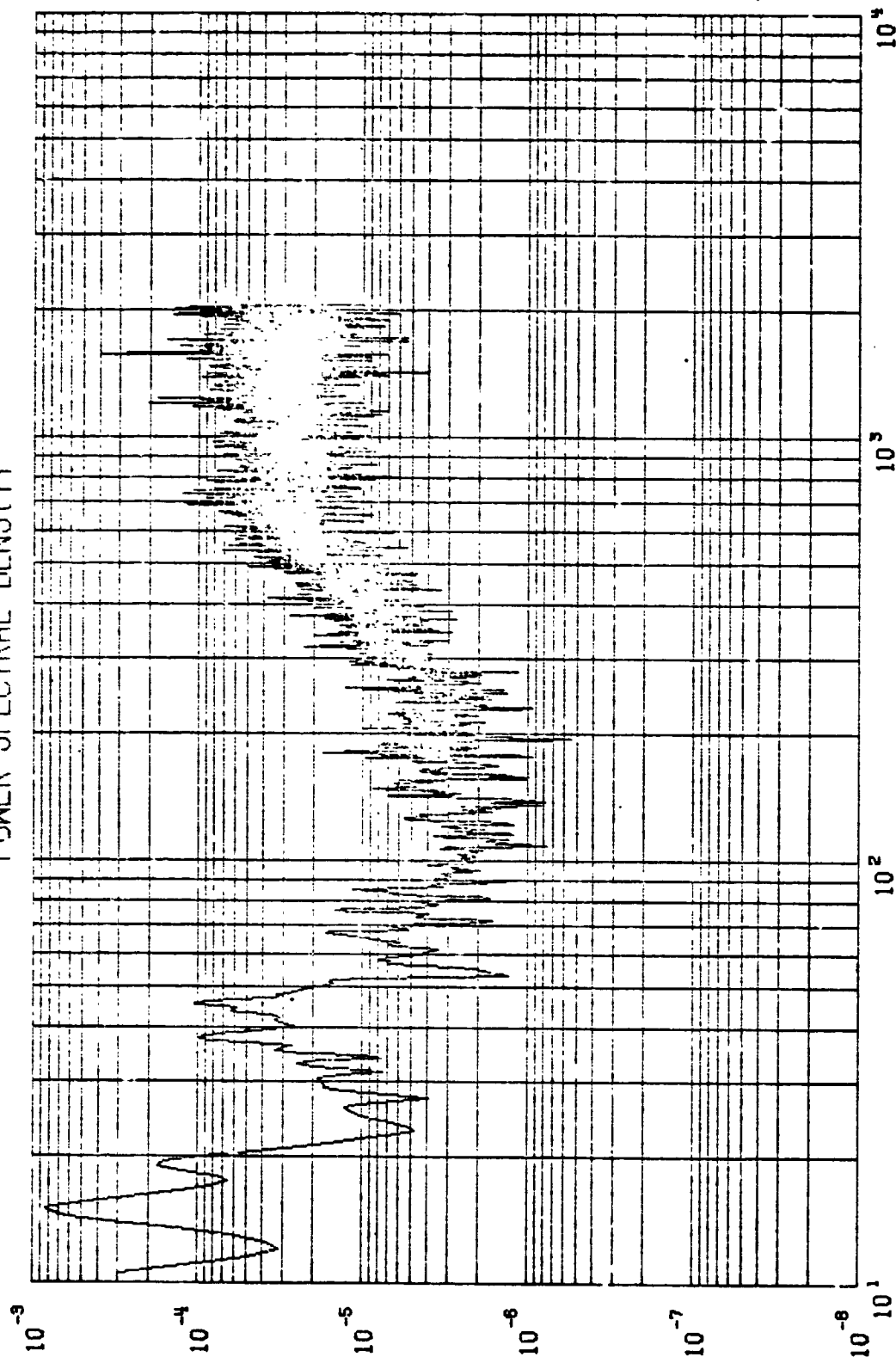
MAX Q

CY1830

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.60a

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .499$
 $\text{START} = 76960.000 \text{ SEC}$
 $\text{STOP} = 76962.000 \text{ SEC}$
 $\text{MEAN} = -28427 \times 10^{-5}$
 $\sigma = 68678 \times 10^{-5}$
 $3\sigma = 26206 \times 10^{-5}$
 $3\sigma = 78619 \times 10^{-5}$

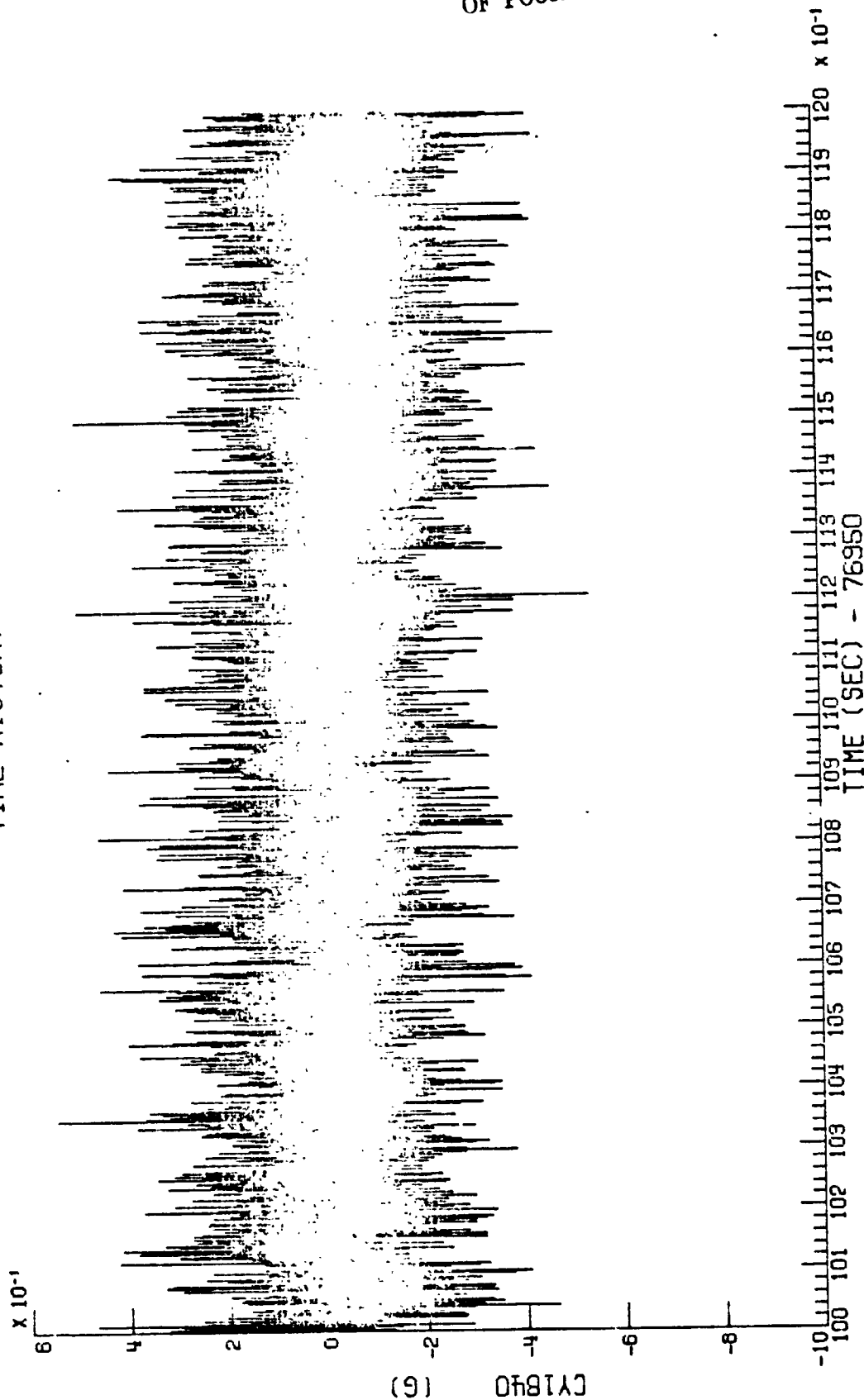
CY1830

MAX Q

VIKING A FLT (CIF)

ORIGINAL PAGE IS
OF POOR QUALITY

TIME HISTORY



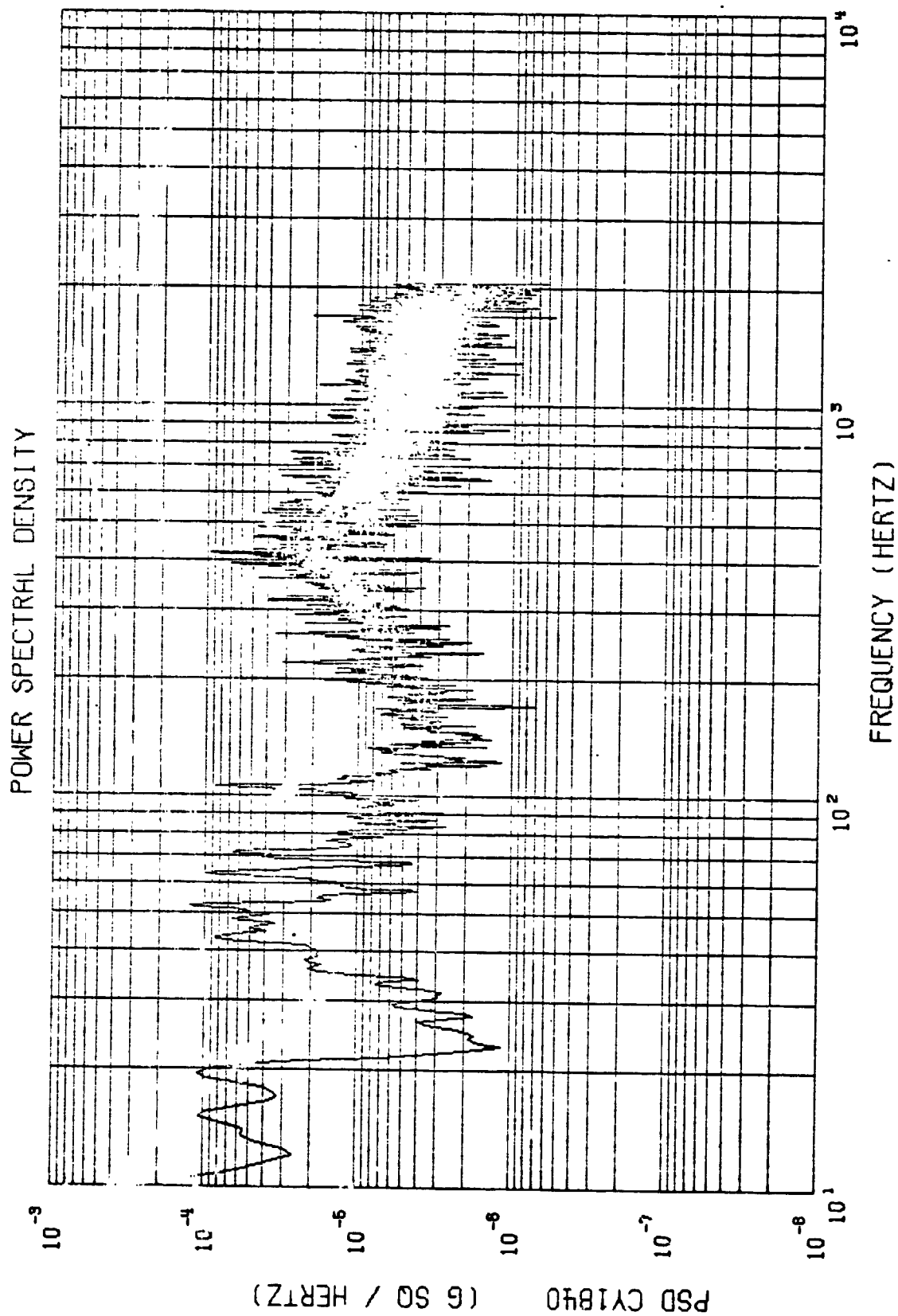
MIN = -.539

MAX = .544

CY1840
Figure 3.61a

MAX Q

VIKING A FLT (CIF)

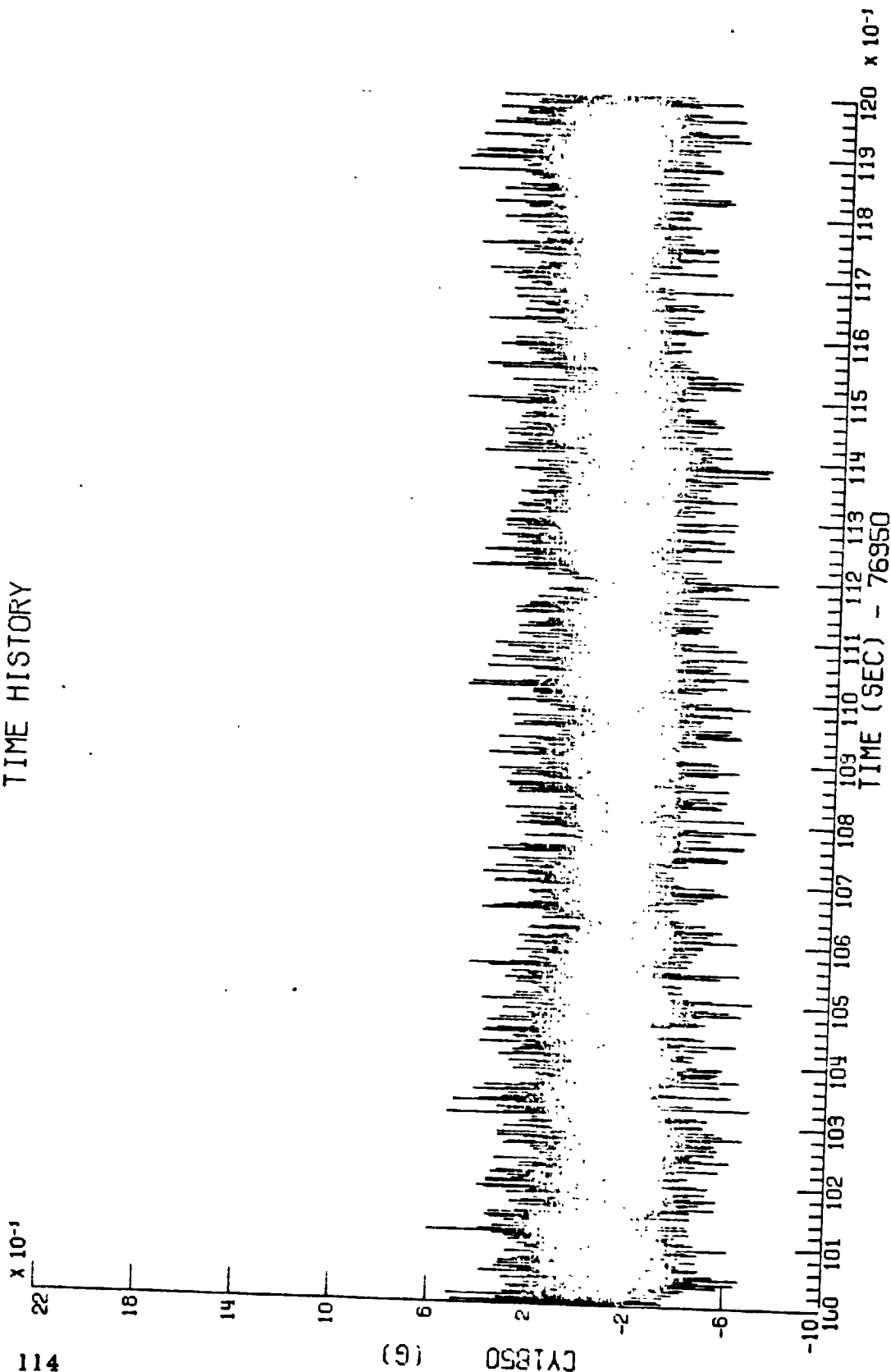


$\Delta F = .499$ START = 76960.000 SEC STOP = 76962.000 SEC
 MEAN = -1596×10^{-5} $\sigma^2 = 18201 \times 10^{-5}$ $\sigma = 13491 \times 10^{-5}$ $3\sigma = 40473 \times 10^{-5}$

VIKING A FLT (CIF) MAX G CY1840

Figure 3.61b

TIME HISTORY



MAX = .600

MIN = -.739

VIKING A FLT (CIF)

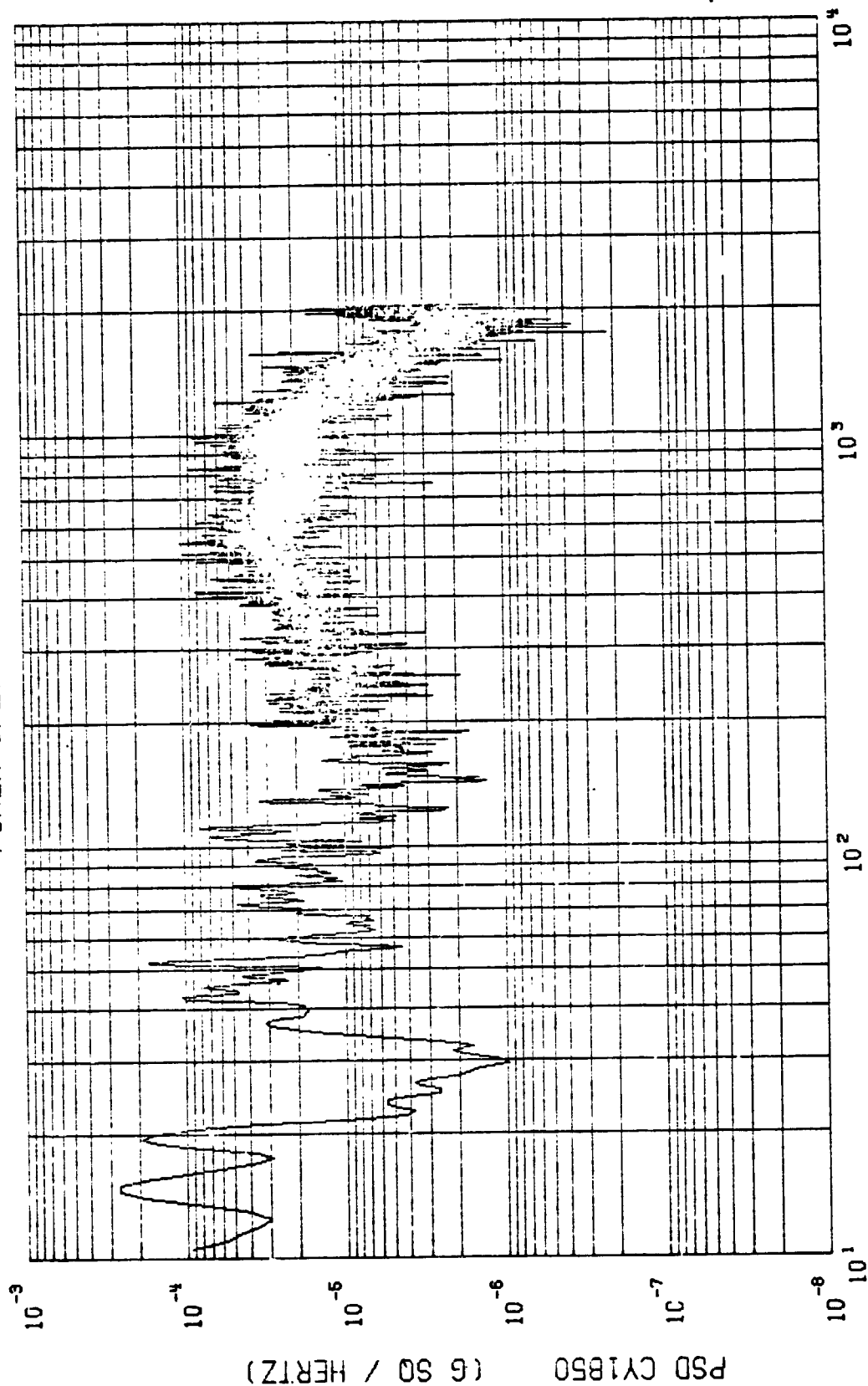
MAX Q

CY1850

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

Figure 3.62a

POWER SPECTRAL DENSITY



$\Delta F = .499$
 $MEAN = -8601 \times 10^{-5}$
 $\sigma^2 = 3749 \times 10^{-5}$
 $\sigma = 19362 \times 10^{-5}$
 $3\sigma = 58087 \times 10^{-5}$

CY1850

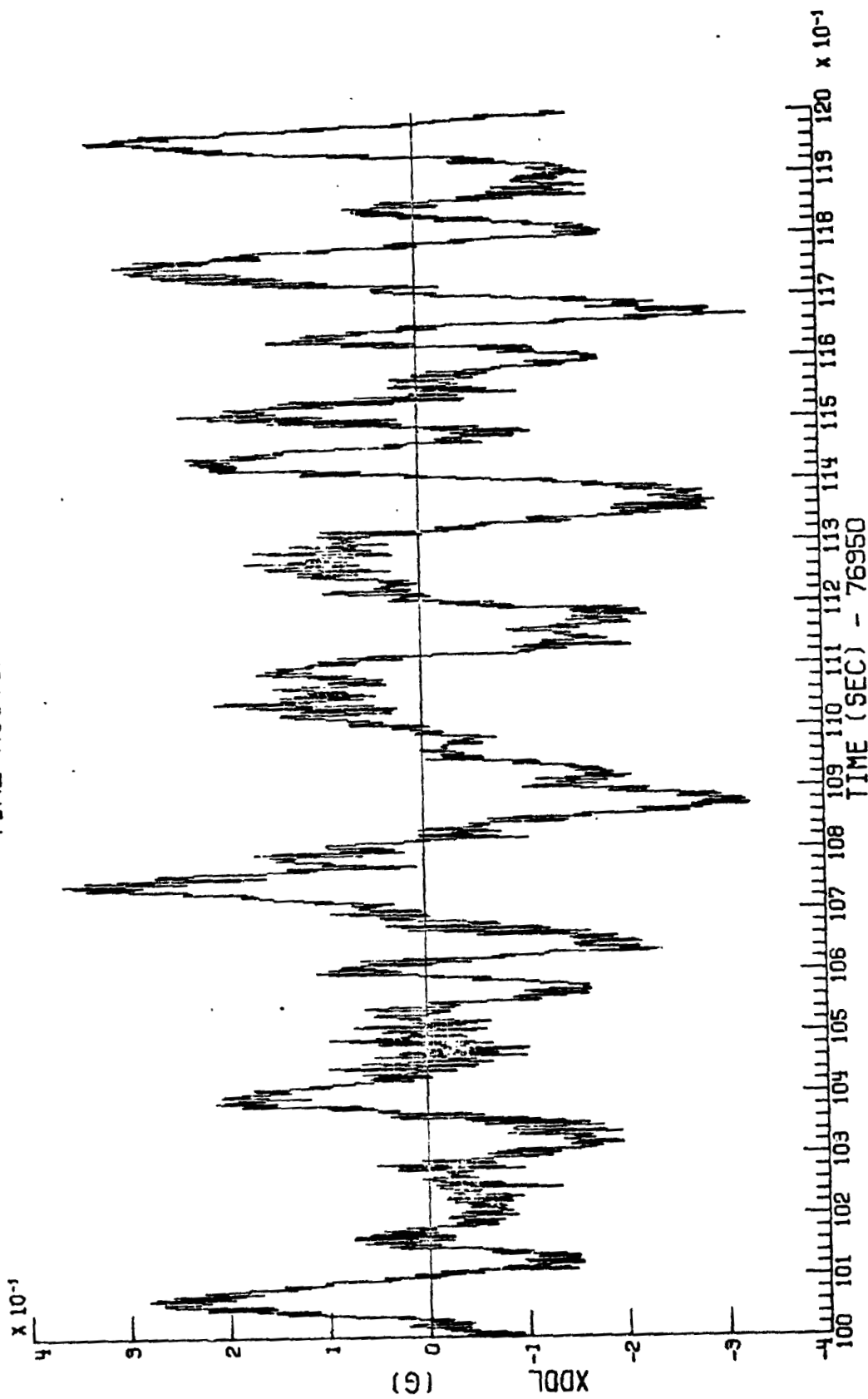
MAX Q

VIKING A FLT (CIF)

Figure 3.62b

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75

TIME HISTORY



MAX = .363

MIN = -.329

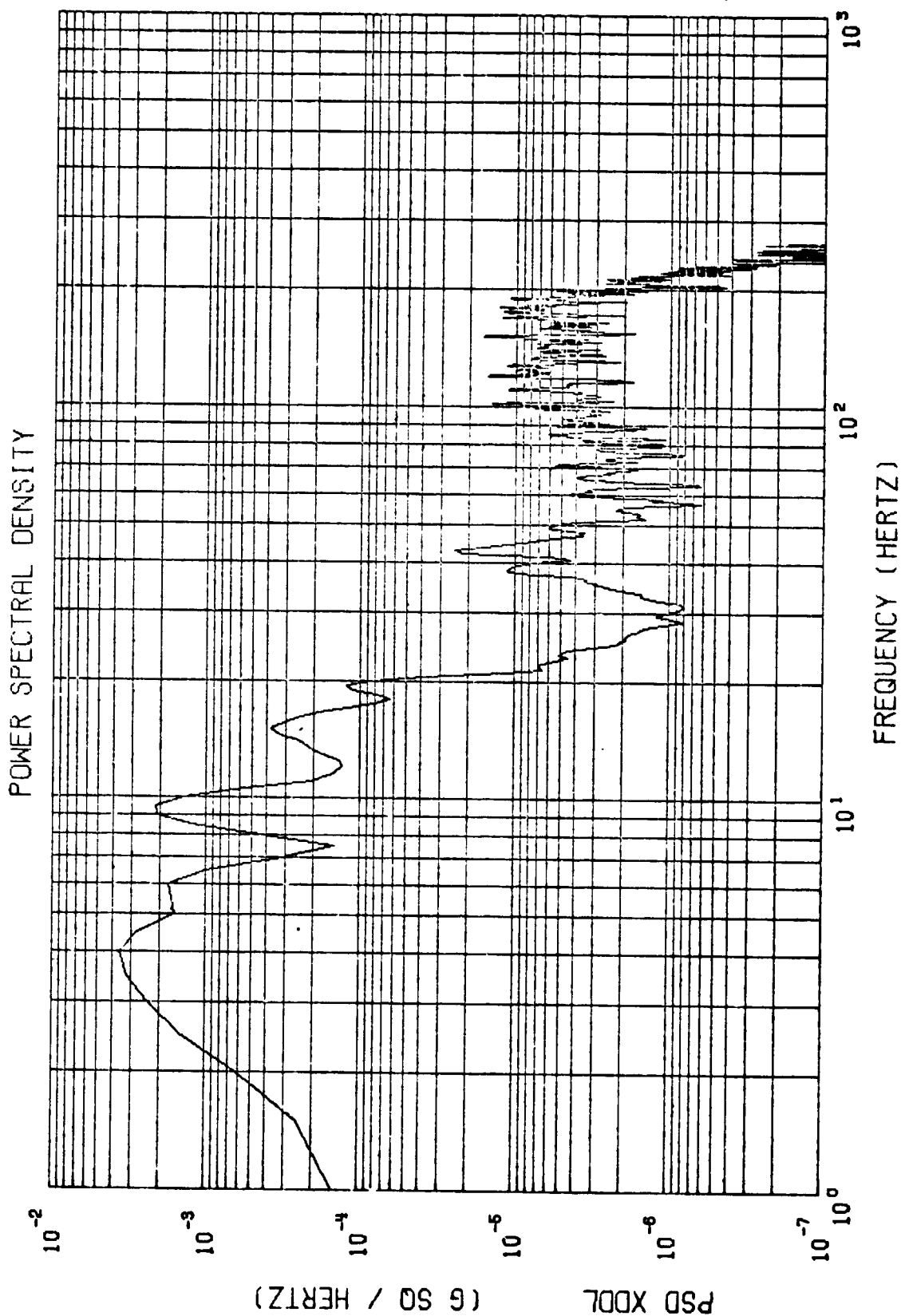
XDDL

MAX Q

VIKING A FLT (CIF)

Figure 3.63a

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM 08/21/75



$\Delta F = .500$ START = 76960.000 SEC STOP = 76962.000 SEC
 MEAN = -93397×10^{-7} $\sigma^2 = 17104 \times 10^{-5}$ $\sigma = 13078 \times 10^{-5}$ $3\sigma = 39235 \times 10^{-5}$

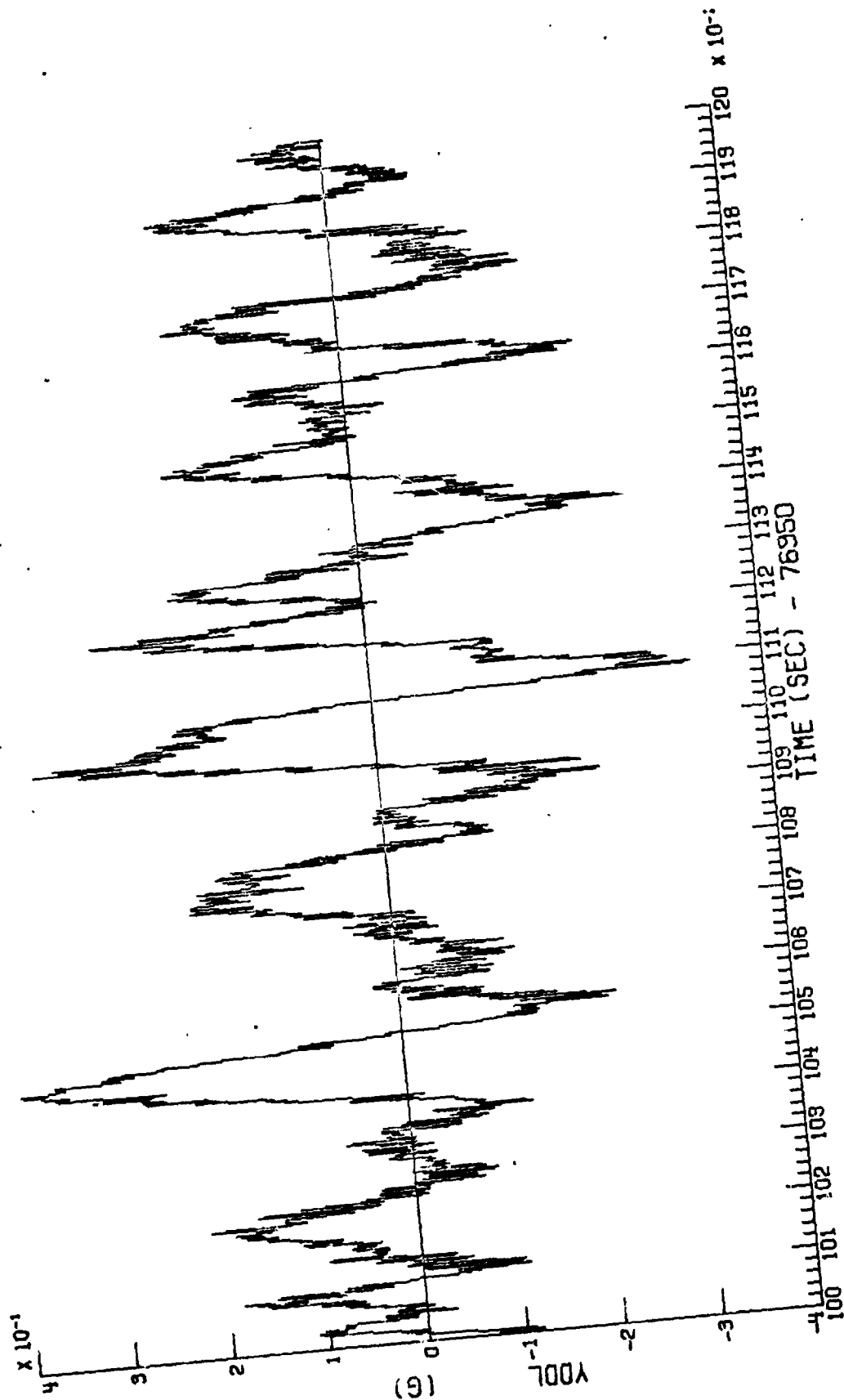
VIKING A FLT (CIF)

MAX Q

XDDL

Figure 3.63b

TIME HISTORY



MIN = -.325

MAX = .393

YDDL

MAX Q

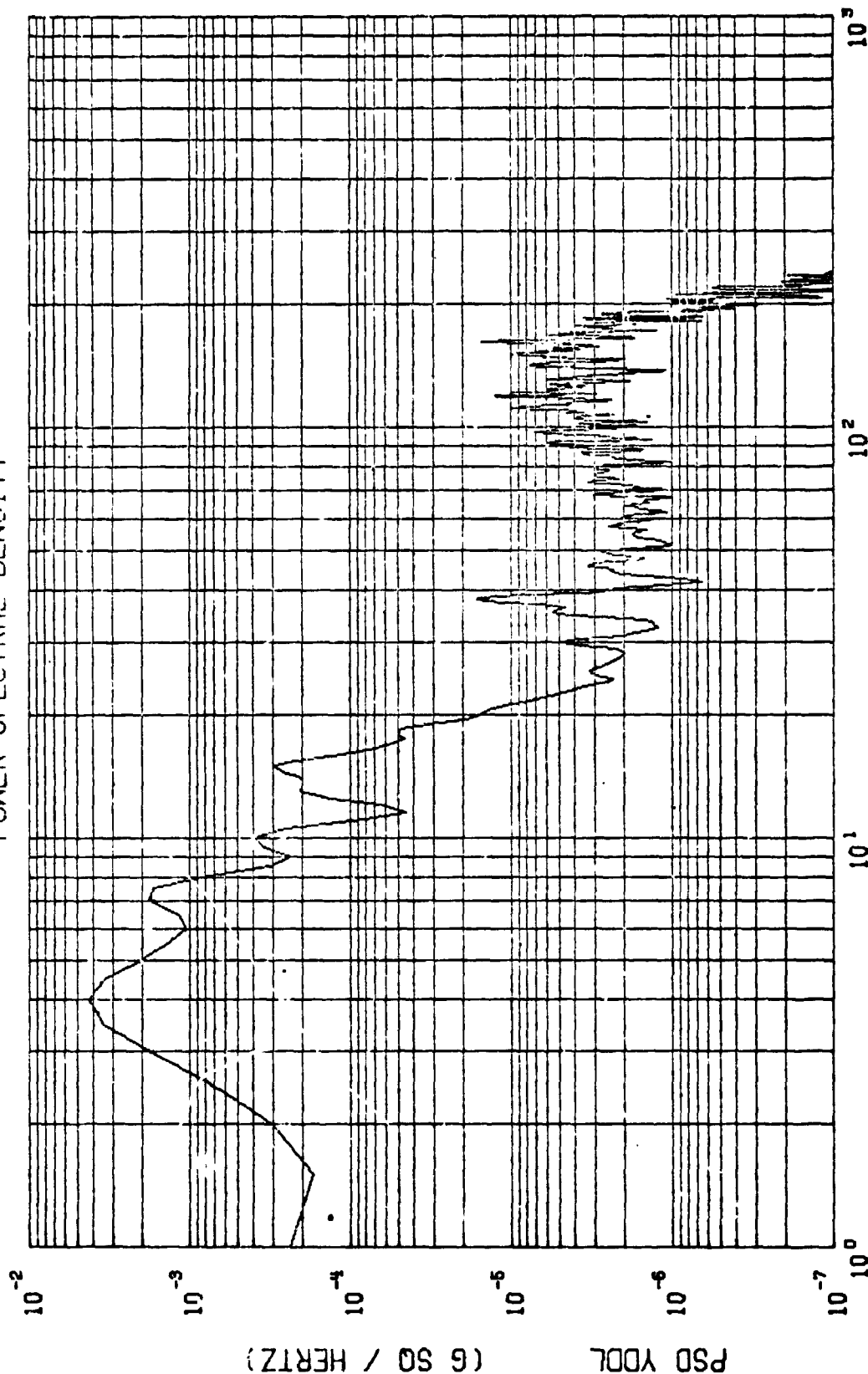
Figure 3.64a

VIKING A FLT (CIF)

08/21/75

NASA-LANGLEY SIGNAL ANALYSIS PROGRAM

POWER SPECTRAL DENSITY



FREQUENCY (HERTZ)

$\Delta F = .500$ START = 76960.000 SEC STOP = 76962.000 SEC
 MEAN = 1788×10^{-5} $\sigma^2 = 14999 \times 10^{-5}$ $\sigma = 12247 \times 10^{-3}$ $3\sigma = 36741 \times 10^{-3}$

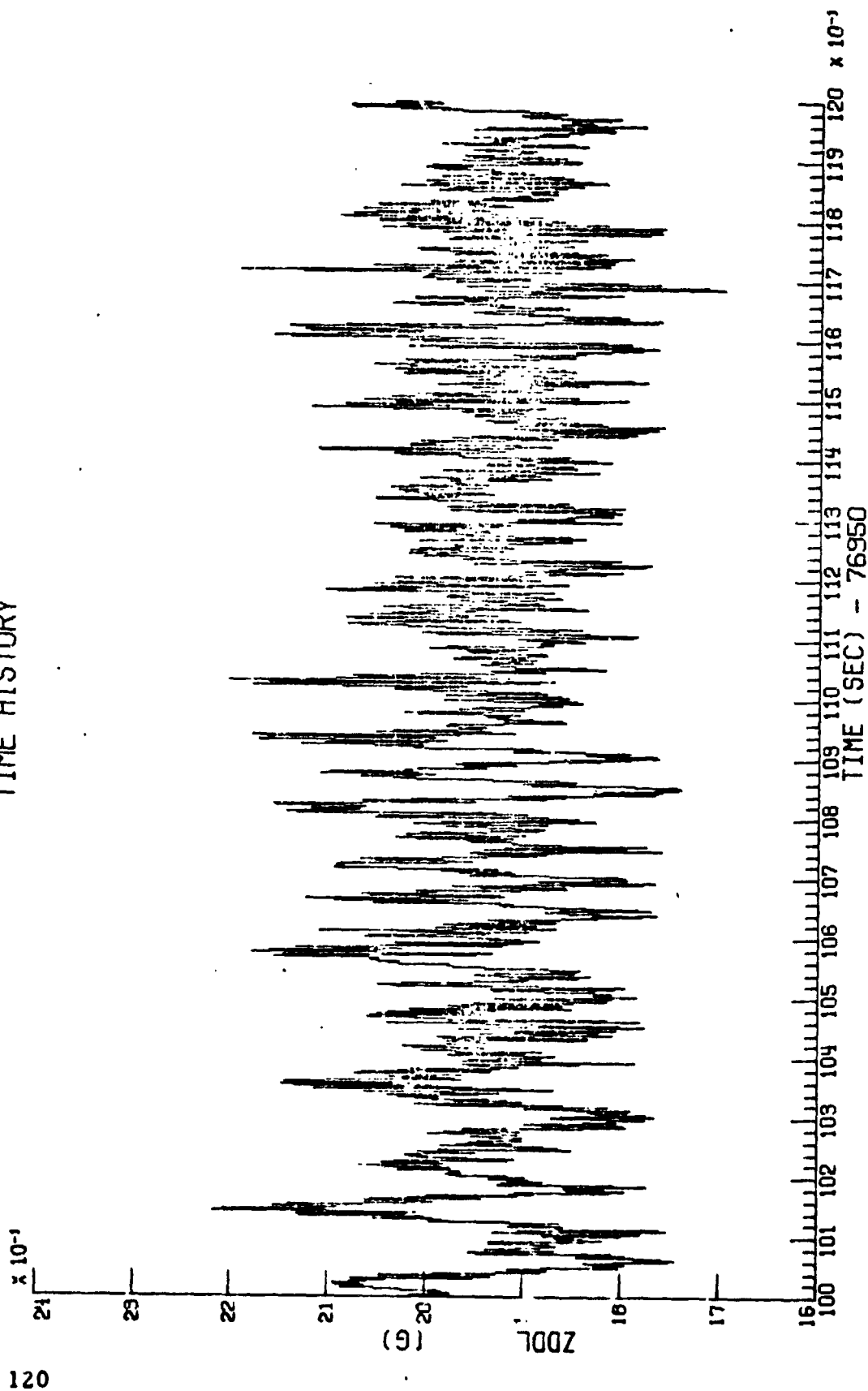
YDDL

MAX Q

VIKING A FLT (CIF)

Figure 3.64b

TIME HISTORY



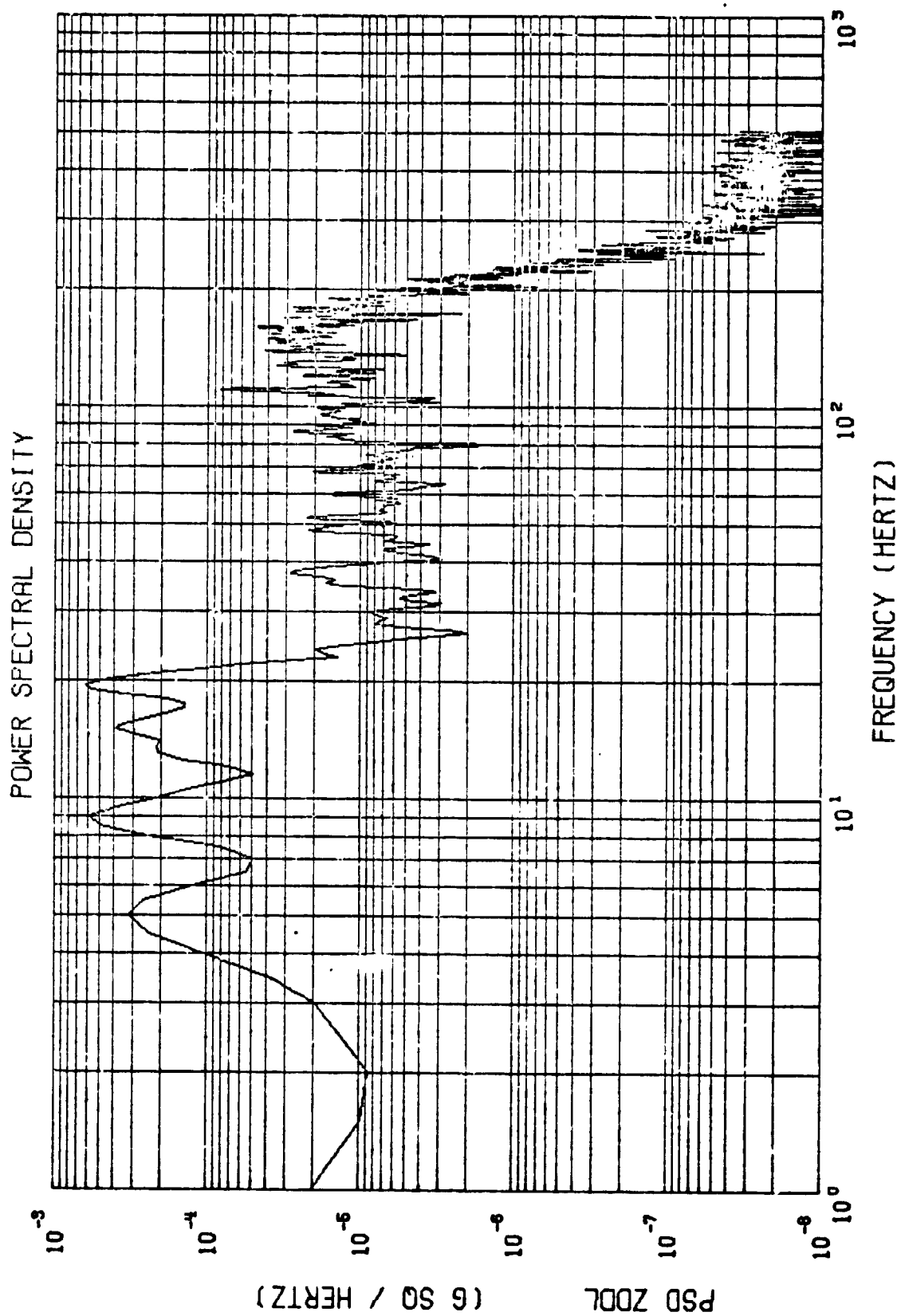
MAX = 2.216

MIN = 1.638

VIKING A FLT (CIF)

MAX 0

ZDOL



$\Delta F = .500$
 $\text{START} = 76360.000 \text{ SEC}$
 $\text{STOP} = 76362.000 \text{ SEC}$
 $\text{MEAN} = 19358 \times 10^{-4}$
 $\sigma^2 = 71296 \times 10^{-7}$
 $\sigma = 84437 \times 10^{-4}$
 $3\sigma = 25331 \times 10^{-4}$

VIKING A FLT (CIF) MAX Q ZODL

Figure 3.65b

TIME HISTORY

$\times 10^{-3}$

-1

-2

-3

-4

-5

-6

-7

-8

-9

(G)

Z008



MAX = -.403

MIN = -.809

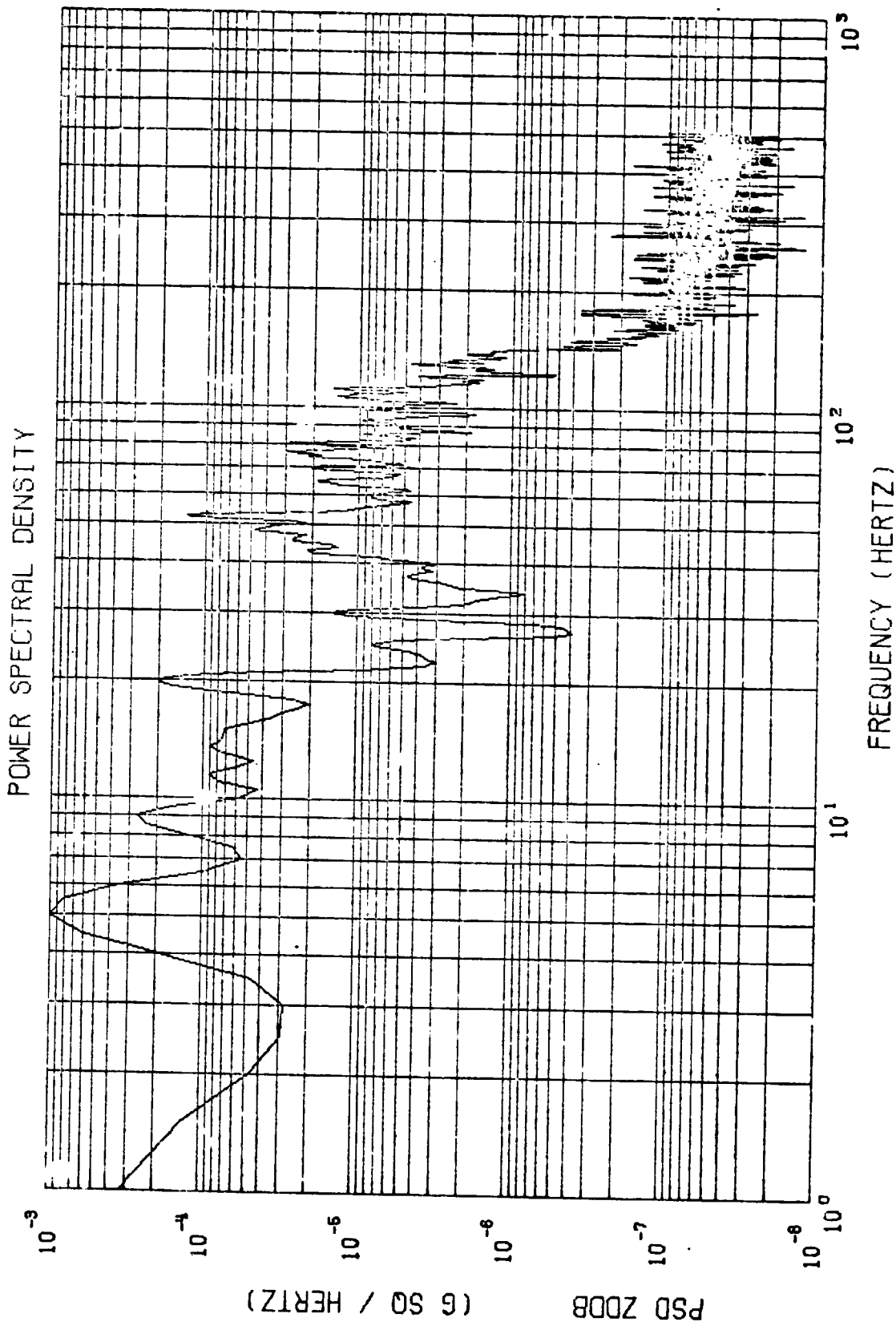
VIKING A FLT (CIF)

MAX Q

Z008

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Figure 3.66a



$\Delta F = .500$ START = 76960.000 SEC STOP = 76962.000 SEC
 MEAN = -58316×10^{-3} $\sigma^2 = 47317 \times 10^{-7}$ $\sigma = 68787 \times 10^{-5}$ $3\sigma = 20636 \times 10^{-5}$

VIKING A FLT (CIF) MAX Q Z00B

Figure 3.66b